DECISION DOCUMENT

Pulverizing Services Site

Moorestown, Burlington County, New Jersey

United States Environmental Protection Agency
Region II
New York, New York

DECLARATION STATEMENT

DECISION DOCUMENT

SITE NAME AND LOCATION

Pulverizing Services Site
Moorestown, Burlington County, New Jersey

STATEMENT OF BASIS AND PURPOSE

This Decision Document memorializes the U.S. Environmental Protection Agency's selection of the response measure to address soil contamination at the Pulverizing Services site, in accordance with the requirements of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA) 42 U.S.C. §9601 et seq, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan, as amended, 40 CFR Part 300 et seq. This Decision Document explains the factual and legal basis for selecting the response measure at this site. The information supporting this response measure is contained in the administrative record for the site, the index of which can be found in appendix III to this document.

The New Jersey Department of Environmental Protection has elected not to review documents or provide any state oversight for the Pulverizing Services site.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the Pulverizing Services Superfund site, if not addressed by implementing the response measure selected in this Decision Document, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED RESPONSE MEASURE

The selected response measure is the final action for addressing the soil contamination at the site. Additional actions will be necessary to investigate the extent of groundwater and surface water contamination remaining at the site. The major components of the selected response measure include:

- Excavation and transportation to an off-site disposal facility of approximately 13,100 cubic yards of contaminated soils determined to be above 0.34 parts per million (ppm) of aldrin, 0.36 ppm of dieldrin, or 17.0 ppm of 4,4'-DDT;

- Disposal of the excavated soils that are below the treatment level of 1,000 ppm of chlorinated pesticides, and are not hazardous waste pursuant to the Resource Conservation and Recovery Act (RCRA), at an appropriate off-site landfill;

- Treatment, by off-site thermal desorption, of all contaminated soil above the 1,000 ppm treatment level, that is determined to be treatable by thermal desorption (any contaminated soil above the treatment level that cannot be treated by thermal desorption, and any soils that are deemed RCRA hazardous waste, will be sent to an off-site permitted incinerator for treatment); and

- Backfilling of the excavated areas with clean fill from an off-site location, covering these areas with topsoil, and seeding.

The preferred remedy would allow for future commercial use of the site. This response measure contemplates institutional controls, such as a deed restriction, to ensure that the future land use remains commercial.

DECLARATION OF STATUTORY DETERMINATIONS

The selected response measure meets the requirements set forth in CERCLA §121 in that it: (1) is protective of human health and the environment; (2) complies with federal and state requirements that are legally applicable or relevant and appropriate; (3) is cost-effective; (4) utilizes alternative treatment (or resource recovery) technologies to the maximum extent practicable; and (5) satisfies the statutory preference for remedies that employ treatment to reduce the toxicity, mobility, or volume of the hazardous substances, pollutants or contaminants at the site.

Because this remedy will result in hazardous substances remaining on the site above levels that will not allow for unrestricted use, a review will be conducted within five years after the commencement of this response measure to ensure that it continues to provide adequate protection of human health and the environment.

William J. Muszynski

Jeanne M. Fox, Regional Administrator
U.S. Environmental Protection Agency
Region II

7/23/95
Date

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Pulverizing Services Site

Moorestown, Burlington County, New Jersey

United States Environmental Protection Agency
Region II
New York, New York
July 1999

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SITE NAME, LOCATION AND DESCRIPTION

The Pulverizing Services site is located on approximately 24 acres in an industrial park at 332 New Albany Road in Moorestown, Burlington County, New Jersey. The site is located 3/4-mile east of the North Branch of the Pennsauken Creek and 3/4-mile west of an unnamed creek. Land use in the vicinity of the site consists of commercial, light industrial, and residential areas.

The site is bounded to the northwest by Crider Avenue, across which is located a manufacturing facility. Railroad tracks and several residences are located southeast of the site. Residential, commercial, and industrial properties are located southwest of the site. Northeast of the site are commercial and industrial facilities. A site location map is presented as Figure 1.

Based on land use and location, the entire site has been subdivided into three areas referred to as areas A, B, and C. New Albany Road, a major roadway, separates Area B from Areas A and C. Area A, the former main processing area including the trench area, contains most of the contamination. Area B contains a two-story house and a garage that were used as an office and a quality control lab, respectively. A railroad spur originates in Area A and runs along the north-eastern side of Area B; the remaining portion of Area B and all of Area C have been left unused since the time that these properties were farmland. The southeastern portion of Area B, adjacent to the railroad tracks, contains wetlands which drain to the west along the tracks into the Pennsauken River. No private wells are found within a quarter mile of the site, and no public wells are within a mile. No federal or state listed, proposed, threatened, or endangered species were found at the site. A site layout map is presented as Figure 2.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

The site is an inactive pesticide formulating facility. A summary of site ownership is presented below:

- 1935 to 1946 - The plant was operated by the International Pulverizing Company
- 1946 to 1948 - The plant was owned and operated by Micronizer Company, a subsidiary of Freeport Sulfur Company
- 1948 to 1963 - The plant was owned and operated by PPG Industries, Inc.
- 1963 to 1979 - The plant was owned and operated by

Pulverizing Services, Inc., until plant operations ceased in 1979

- <u>1979 to Present</u> - The plant remains inactive and unoccupied

During the operating period of the plant, operations were primarily limited to Area A and involved the grinding, micronizing, and blending of pesticides. According to historical reports, operations were initially limited to formulation of inorganic pesticides such as lead arsenate, calcium arsenate, sulfur, and tetrasodium pyrophosphate. In later years, synthetic organic pesticides such as dichlorodiphenyltrichloroethene (DDT), aldrin, malathion, dieldrin, lindane, rotenone, and n-methyl carbamate (Sevin or Carbaryl) were reportedly formulated. The active pesticide ingredients were not manufactured at the site, but were imported to the site then ground, blended, and packaged for distribution under various labels.

Historical records of Pulverizing Services, Inc., indicated that since 1935, only dry chemical processing was conducted at the site. Formulating activities included the grinding (using fluid energy such as compressed air), densifying, packaging, warehousing, and distributing of products to support industries such as plastics, pharmaceuticals, and pesticides.

During the 1950s and early 1960s, waste material was reportedly disposed of in several trenches north of the main production buildings. In addition, historical project files indicate that ash and debris from a 1964 fire was reportedly placed in a trench north of the main production buildings in Area A.

In 1979, commercial operations at the plant ceased. In 1983, the former plant production facilities within Area A were decommissioned (by removing some interior facilities) and boarded shut. The building structures of the production facilities remain at the site.

On June 12, 1985, in response to allegations of improper waste disposal, the New Jersey Department of Environmental Protection (NJDEP) performed a site inspection. This inspection revealed that waste material (drummed and loose) remained on site, in and around the buildings, and also appeared to be buried at the north end of Area A. In April 1986, NJDEP sampled Area A and determined that the trench area was contaminated with pesticides (DDT and its decomposition products, DDD and DDE).

In October 1987, after a request by NJDEP to take the lead for the site, the EPA Technical Assistance Team conducted an investigation at the site. Samples were collected from soil, sediment, surface water, former plant structures and air. This investigation confirmed the findings of the NJDEP investigation and further determined that the contamination was not limited to the trench areas, but could also be found in Areas B and C. In December 1987, the EPA Environmental Response Team conducted an investigation at the site. A ground penetrating radar survey was used to identify several subsurface anomalies in Area A. Samples were also taken of surface and subsurface soils within Areas A, B, and C. In addition to DDT, DDD, and DDE, arsenic was also detected in on-site soils. After voluntarily entering into an order with EPA in May 1988, PPG Industries (PPG), a former owner/operator of the facility, installed security fencing around Areas A and C. These areas were chosen to be fenced because they contained the main processing area and could serve as a staging area for future cleanup work.

In 1989, EPA entered into negotiations with the Potentially Responsible Parties (PRPs) for the site. PPG agreed to perform the necessary investigations at the site with the remaining PRPs agreeing to perform a removal action to clean up the material in and around the buildings. The other PRPs were companies that sent pesticides to the site to be formulated, retaining ownership of the pesticides throughout the process, and the current owner of the site.

The Phase I Site Investigation was conducted from December 1989 to January 1990, by Paul C. Rizzo Associates, Inc., under contract with PPG. During the investigation, 20 soil borings were completed, and six monitoring wells were installed within Area A. Several soil samples (both surface and subsurface) were collected from each boring. In addition, four surface soil samples were collected from the vicinity of the garage in Area B, and one sediment sample was collected from the drainage ditch northwest of Area A. Samples were analyzed for volatile organic compounds (VOCs), semi-voltatile organic compounds (SVOCs), pesticides, and herbicides. A magnetometer and electric conductivity survey were also performed in Area C. A draft report was submitted to EPA on May 25, 1990.

In September 1990, the building cleanup began under the direction of EPA. As part of this cleanup, approximately 600 drums and 580 cubic yards of waste materials were shipped off-site. The interiors of the buildings were then power washed and secured.

The Phase I Site Investigation Report was revised and resubmitted in April 1993. In addition, the discovery of contaminated soil in Area B prompted PPG to install security fencing around Area B in the Spring of 1993.

Results of the previous EPA and NJDEP sampling events and the

Phase I Site Investigation were used to focus the Phase II sampling activities. The Phase II Site Investigation was performed between October 1994 and May 1995. The goal of the investigation was to further characterize the nature and extent of contamination on and in the immediate vicinity of the site, gather data to support the development of Preliminary Remediation Goals (Cleanup Goals) and provide the necessary data to prepare the Response Measures Evaluation Report (RME). The RME identified viable cleanup technologies for the contaminants of concern and evaluated the most appropriate cleanup alternative for the site. The Phase II Site Investigation Report and the RME were finalized in November 1995 and December 1997, respectively.

In the Spring and Fall of 1996, two removal actions were performed to remove contaminated surface soils from two adjacent properties that were identified during the Phase II investigation. Soils removed during these activities were staged on site in Building 29 for subsequent disposal.

In December 1998, a third removal action was performed, to remove approximately 3,460 cubic yards of contaminated surface soil from an adjacent property.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The investigation reports, Response Measure Evaluation Report, Proposed Plan and supporting documentation were made available to the public in the administrative record file at the Superfund Document Center in EPA Region II, 290 Broadway, New York, New York, and the information repository at the Burlington County Library, 5 Pioneer Boulevard, Westampton, New Jersey. The notice of availability for the above-referenced documents was published in the Burlington County Times on January 17,1999. The public comment period which related to these documents was held from January 19, 1999 to February 19, 1999.

On January 27, 1999, EPA conducted a public meeting in the court room at 11 West Street in Moorestown, New Jersey. The purpose of the meeting was to inform local officials and interested citizens about the Superfund process, present the conclusions of the site Investigation, elaborate further on the recommended and preferred remedial response measure, receive public comments, and respond to questions from area residents and other interested parties. Responses to the comments received at the public meeting and in writing during the public comment period are included in the Responsiveness Summary of this Decision Document.

SCOPE AND ROLE OF OPERABLE UNIT

This action is the first operable unit or phase taken to address the site. This action will address contaminated soil within the Pulverizing Services property boundaries. The second operable unit will address groundwater, surface water, and sediment.

SITE CHARACTERISTICS

Phase I Investigation Summary

The Phase I Site Investigation primarily focused on the collection of samples from soil borings, sediments, and groundwater in Area A. A limited investigation was performed in Area B, which included the installation of one boring and the collection of four surface soil samples. Since this operable unit only addresses the contaminated site soils, the following summary will only provide the findings of the surface and subsurface soil portions of the Phase I Site Investigation.

Area A Soils

Soil samples were collected from 19 borings in Area A. Surface soil samples were obtained from the 0-2 foot interval. Subsurface soils were obtained from the 5 to 7 foot and the 10 to 12 foot interval. The samples were analyzed for inorganics, VOCs, SVOCs, and pesticides.

Analysis of the soil boring samples revealed that inorganics were detected at concentrations within expected background ranges. The concentrations of lead and arsenic varied between 2.4 and 22.9 parts per million (ppm) and <1.0 and 17 ppm, respectively. Volatile and semi-volatile organic compounds were detected in low concentrations at intermittent locations in the surface and subsurface.

Surface Soil Pesticide Results

Six shallow soil boring samples were submitted for laboratory analysis. Measurable levels of dieldrin and combined DDD, DDE, and DDT concentrations within those samples ranged from 0.25 to 270 ppm and 0.04 to 4.1 ppm, respectively. Aldrin was not detected in the shallow boring samples. Borings located near the northeastern perimeter fence and Building 29 contained the greatest concentrations of pesticides.

Subsurface Soil Pesticide Results

Thirty-eight subsurface samples were submitted for laboratory analysis. Dieldrin and combined DDD, DDE, and DDT concentrations within those samples ranged from 0.019 to 63.9 ppm and 0.030 to 470 ppm, respectively. Aldrin was detected in the 5-7 foot interval only, at concentrations ranging from 0.022 to 6.9 ppm. Constituents detected in the subsurface soil boring samples were primarily located within the area of the former disposal trench.

Area B Soils

Surface Soil Results

Four surface soil samples were collected from Area B in the vicinity of the garage. DDT was detected at levels ranging from 2.71 to 27,200 ppm.

Subsurface Soil Results

Two subsurface soil samples were collected from one soil boring in Area B. Dieldrin and combined DDD, DDE, and DDT concentrations were reported as non-detect (ND) and 0.227 to 2.92 ppm, respectively. Aldrin was not detected in the samples.

Phase II Site Investigation Summary

The Phase II Site Investigation revealed that pesticides (mostly DDT, DDT breakdown products and some dieldrin) were found throughout the site. The highest concentrations of pesticides were within the vicinity of the former disposal trench, along the northeast perimeter fence, and in Area A. The report also indicated that inorganics were present in soils within Area A, but only in the areas where elevated levels of pesticide contaminants were detected. Detectable concentrations of SVOCs were primarily restricted to three boring locations in Area A. Volatile organic compounds were only detected at low concentrations. The following summaries provide further detail of the constituents detected in Areas A, B, and C at the site.

Area A

Surface Soil Results

Areas of surface soil contamination in Area A are located within the former disposal trench and along the northeastern perimeter fence. Dieldrin and 4,4-DDT were present at these locations in concentrations ranging from 0.750 to 2,200 ppm and 2.5 to 6,800 ppm, respectively. Sampling locations within or near the former disposal trench contained the greatest contaminant concentrations.

Arsenic, lead, and chromium concentrations ranged from 2.2 to 132.0 ppm, 17.6 to 480.5 ppm, and 5.3 to 96.5 ppm, respectively. These metals were primarily found within isolated surface soil sampling locations within or near the former disposal trench, and near the southwestern perimeter fence.

Subsurface Soil Results

Pesticide-containing subsurface soils in Area A are primarily located within the former disposal trench, in areas immediately east of the disposal trench near Building 29, and near the drainage ditch outfall pipe. Concentrations of dieldrin and DDT range from 0.022 to 63.9 ppm and 0.030 to 442.0 ppm, respectively. Arsenic, lead, and chromium concentrations ranged from 3.1 to 24.8 ppm, 2.4 to 124 ppm, and 4.0 to 47.0 ppm, respectively.

Area B

Surface Soil Results

DDT was detected in Area B surface soils at concentrations ranging from 0.190 to 280 ppm. Contamination primarily appears to be limited to areas immediately surrounding soil borings SB-54 and SB-19, located approximately 250 feet southeast of New Albany Road, and within the debris area near the eastern corner of the region. Inorganics in Area B surface soils were detected within background levels.

Elevated levels of SVOCs in Area B surface soils were detected in one boring installed adjacent to the railroad tracks.

Subsurface Soil Results

Only low concentrations of pesticides were detected in the subsurface soils within Area B. Combined DDD, DDE, and DDT concentrations in samples below the surface soil "hot spots" located southeast of New Albany Road were less than 2 ppm.[1] Combined DDD, DDE, and DDT concentrations up to 65 ppm were detected in the subsurface soils of the debris area located in the eastern corner of the region.

Area C

Surface Soil Results

Data from surface samples collected within Area C do not indicate the presence of pesticides at elevated concentrations. DDT was detected at concentrations ranging from 0.022 to 3.8 ppm.

Data indicates the presence of arsenic at levels ranging from non-detect(ND) to 88 ppm.

[1] "Hot spots" for this site were determined to be all soils above 1,000 ppm total chlorinated pesticides (treatment level).

SUMMARY OF SITE RISKS

Based upon the results of the RI, a baseline risk assessment was conducted to estimate the risks associated with current and future site conditions. The baseline risk assessment estimates the human health and ecological risk which could result from the contamination at the site if no response measure were taken.

Human Health Risk Assessment

To perform a Human Health Risk Assessment, a reasonable maximum human exposure is evaluated. The following four-step process is then utilized for assessing site-related human health risks for a reasonable maximum exposure scenario:

1. *Hazard Identification* -- identifies the chemicals of potential concern at the site based on several factors such as toxicity, frequency of occurrence, and concentration.

2. *Exposure Assessment* -- estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated well-water) by which humans are potentially exposed.

3. *Toxicity Assessment* -- determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response).

4. *Risk Characterization* -- summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative (e.g., one-in-a-million excess cancer risk) assessment of site-related risks.

The baseline risk assessment began with selecting chemicals of potential concern which would be representative of the contamination found in various media (surface soil, subsurface soil, surface water, sediment, and groundwater) at the site. This Operable Unit only addresses the surface and subsurface soil; therefore, only contaminants present in said media were addressed. Because of the large number of chemicals detected at the site, only those chemicals which pose the highest risk (based on factors such as frequency of detection and concentration detected) were retained as chemicals of potential concern. Table 1 provides a comprehensive list of the chemicals of potential concern in the surface and subsurface and the concentrations at which they were detected.

Several of the contaminants of concern[2] are known or suspected carcinogens: arsenic, beryllium, benzo(a)pyrene, aldrin, dieldrin, DDT, DDD, and DDE.

An important factor which drives the risk assessment is the assumed future use of the site. Based on discussions with Moorestown Officials and the fact that the site is currently zoned for commercial and light industrial use, EPA assumed that the most probable future use of the site would be for continued commercial and industrial development. Under the current land use of the property, the site contaminants have the potential to impact Trespassers. In the future, it is possible that potential human receptors would include Trespassers, Site Workers (employees of a potential future company located on site, that would have limited exposure to surface soils over long periods of time), and Construction Workers (a person such as a utility worker that may have a short duration exposure to larger amounts of surface soil as well as subsurface soils). This Operable Unit focuses on surface and subsurface soil pathways.

Pathways of exposure evaluated for the site include the following:

1) sediment and soil ingestion;
2) dermal contact with soil and sediment;
3) ingestion of contaminated groundwater and surface water;
4) dermal contact with surface water; and
5) inhalation of VOCs and particulates.

Because EPA assumed a future commercial and industrial land use of the site, the list of possible human receptors identified in the exposure assessment included Trespassers, Site Workers, and Construction Workers. Chronic daily intake doses (CDIs) were calculated for each receptor for all pathways considered. The CDI is the reasonable maximum daily exposure to a particular chemical based on site conditions.

Potential carcinogenic risks were evaluated using the cancer slope factors developed by EPA for the contaminants of concern. Slope factors have been developed by EPA's Carcinogenic Risk Assessment Verification Endeavor for estimating excess lifetime cancer risks associated with exposure to potentially carcinogenic chemicals. Slope factors, which are expressed in units of $(mg/kg\text{-}day)^{-1}$, were multiplied by the estimated chronic daily intake of a potential carcinogen, in mg/kg-day, to generate an "upper-bound" estimate of the excess lifetime cancer risk

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[2]Contaminants of concern are listed in bold type on Table 1.

associated with exposure to the compound at that intake level. The term "upper-bound" reflects a conservative estimate of the risks calculated from the Slope Factor. Use of this approach makes underestimation of the actual cancer risk highly unlikely. A mathematical representation for calculating the excess lifetime cancer risk is as follows:

$$\text{Risk} = \text{CDI} \times \text{Sf}$$

where:
Risk = probability (e.g., 2×10^{-5}) of an individual developing cancer; "upper-bound"
CDI = chronic daily intake averaged over 70 years (mg/kg-day)
Sf = slope-factor, expressed as $(\text{mg/kg-day})^{-1}$

These risks are probabilities that are generally expressed in scientific notation. EPA's acceptable cancer risk range is 10^{-4} to 10^{-6} which can be interpreted to mean that an individual may have a 1 in 10,000 to 1 in 1,000,000 increased chance of developing cancer as a result of site-related exposure to a carcinogen over a 70-year lifetime under the specific exposure conditions at the site. The state of New Jersey's acceptable risk standard is one in one million (10^{-6}).

EPA found the levels of contaminants found in some of the surface soil samples in Area A at the site posed an unacceptable total cancer risk to Trespassers and future Site Workers through ingestion and inhalation. Dieldrin, DDT and aldrin are the predominant contributors to the estimated cancer risk. The other receptors/exposure routes have estimated cancer risks within or below EPA's acceptable risk range. A complete list of the combined carcinogenic risks associated with each pathway can be found in Table 2.

Non-carcinogenic risks were assessed using a hazard index (HI) approach, based on a comparison of expected contaminant intakes and safe levels of intake (Reference Doses). Reference Doses (RfDs) have been developed by EPA for indicating the potential for adverse health effects. RfDs, which are expressed in units of milligrams per kilogram per day (mg/kg-day), are estimates of lifetime daily exposure levels for humans, including sensitive individuals. Estimated intakes of chemicals from environmental media (e.g., the amount of a chemical ingested from contaminated drinking water) are compared to the RfD to derive the hazard quotient (HQ) for the contaminant in the particular medium. The HQ represents the ratio of exposure to toxicity. By adding the hazard quotients for all compounds within a particular medium that impact a particular receptor population the HI is obtained. An HI greater than 1.0 indicates that the potential exists for non-carcinogenic health effects to occur as a result of site-related exposures. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media. A mathematical representation of the hazard index approach follows:

$$HI = \Sigma \, HQ$$
$$HQ = CDI / RfD$$

where:

HI = Hazard Index; HI > 1.0 potential for non-carcinogenic health effects to occur

Σ = Sum of sign CDI = Chronic Daily Intake

RfD = Reference Dose

CDI and RfD are expressed in the same units and represent the same exposure period

With regard to non-carcinogenic effects, based on the calculated HIs, EPA found that several potential exposure pathways could have unacceptable health effects including:

- Ingestion of Area A surface soil by Trespassers (HI=23)
- Ingestion of Area A surface soil by Site Workers (HI=29)
- Ingestion of Area A subsurface soils by Construction Workers (HI=1.3)
- Ingestion of Area B subsurface soils by Construction Workers (HI=3.0)

The calculated HIs for the combined non-carcinogenic risk associated with each pathway is provided in Table 3.

In summary, the Human Health Risk Assessment concluded that exposure to surface soil and subsurface soils, if not addressed by the response measure selected in this Decision Document, may present a current or potential threat to public health.

The assessment determined the Cleanup Goals based on the 10^{-6} Site Worker exposure, and the 10^{-6} Construction Worker exposure, should be the following:

Soil Cleanup Goals		
Parameter	Site Worker	Construct ion Worker
Aldrin	0.34 ppm	3.3 ppm
Dieldrin	0.36 ppm	3.5 ppm
4, 4'-DDT	17.0 ppm	165.0 ppm

Although the Site Trespasser scenario did pose a risk, a Cleanup Goal based on the Site Worker was more conservative. Therefore, the Site Worker Cleanup Goal was used. EPA estimates that approximately 13,100 tons of soil exceed the Site Worker cleanup goal, and 4,300 tons exceed the Construction Worker Cleanup Goal. A total of 8,800 tons of contaminated soil, fall between the Site Worker and Construction Worker Cleanup Goals.

Ecological Risk Assessment

The Ecological Risk Assessment involves a qualitative and/or semi-quantitative appraisal of the actual or potential effects of a hazardous waste site on plants and animals. A four-step process is utilized for assessing site-related ecological risks:

1. *Problem Formulation* - a qualitative evaluation of contaminant release, migration, and fate; identification of contaminants of concern, receptors, exposure pathways, and known ecological effects of the contaminants; and selection of endpoints for further study

2. *Exposure Assessment* - a quantitative evaluation of contaminant release, migration, and fate; characterization of exposure pathways and receptors; and measurement or estimation of exposure point concentrations

3. *Ecological Effects Assessment* - literature reviews, field studies, and toxicity tests, linking contaminant concentrations to effects on ecological receptors

4. *Risk Characterization* - measurement or estimation of both current and future adverse effects

The RI Report identified several pesticides and metals in surface soils at the site. The qualitative ecological risk assessment began with the identification of flora and fauna that could potentially come into contact with the contaminants in the soil. No federal or state listed, proposed, threatened or endangered flora or fauna are known to occur at or near the site; however, evidence of small mammals and terrestrial receptors such as rabbits and birds were observed. Potential exposure pathways that exist for these terrestrial receptors are ingestion, inhalation, and dermal contact with the contaminants.

A conservative food chain exposure model was conducted to determine if the Preliminary Remediation Goal for 4-4'-DDT would be protective of the ecological receptors. The results of this model indicated that there may be potential risks to ecological receptors associated with exposure to this pesticide. However, the potential risks would be minimal, based on the site-specific characteristics such as the small size of the site, the fact that the property is expected to remain zoned as commercial, the lack of sensitive populations, and the potential for further development and increased human activity (which may further reduce the amount of habitat on the site). Furthermore, the proposed remediation of soils to human health-based Cleanup Goals would decrease the amount of soil containing contaminant concentrations that would pose a risk to ecological receptors.

Uncertainties

The procedures and estimates used to assess risks, as in all such assessments, are subject to a wide variety of uncertainties. In general, the main sources of uncertainty include:

- environmental chemistry sampling and analysis;
- matrix characteristics;
- exposure parameter estimation; and
- toxicological data.

Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals in the media sampled. Consequently, there is significant uncertainty as to the actual levels present. Environmental chemistry analysis error can stem from several sources, including the errors inherent in the analytical methods and characteristics of the matrix being sampled.

Uncertainties in the exposure assessment are related to estimates of how often an individual would actually come in contact with the chemicals of concern, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the chemicals of concern at the point of exposure. Uncertainties in toxicological data occur in extrapolating both from animals to humans and from high to low doses of exposure, as well as from the difficulties in assessing the toxicity of a mixture of chemicals. These uncertainties are addressed by making conservative assumptions concerning risk and exposure parameters throughout the assessment. As a result, the baseline risk assessment provides "upper-bound" estimates of the risks to populations near the site, and it is highly unlikely to underestimate actual risks related to the site.

More specific information concerning public health risks, including a quantitative evaluation of the degree of risk associated with various exposure pathways, is presented in the RI report.

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Decision Document, may present an imminent and substantial endangerment to public health, welfare, or the environment.

RESPONSE MEASURE OBJECTIVES

Response measure objectives are specific goals to protect human health and the environment. These objectives are based on available information and standards such as applicable or relevant and appropriate requirements (ARARs) and risk-based levels established in the Risk Assessment.

The following objectives were established for the site:

- Mitigate potential routes of human health and environmental exposure to contaminated soils;
- Restore the soil at the site to levels which would allow for commercial reuse of the property;
- Treat and/or dispose of soils excavated from off-site properties, and stockpiled in Building 29;
- Remediate all on site soils above the Site Worker Cleanup Goals provided by the Risk Assessment;
- Treat soils above 1,000 ppm total chlorinated pesticides (treatment level). The estimated volume of affected soil above 1,000 ppm is between 1,300 and 4,000 tons; and
- Comply with ARARs, or provide grounds for invoking a waiver.

DESCRIPTION OF ALTERNATIVES

CERCLA §121(b)(1), 42 U.S.C. §9621(b)(1) mandates that a remedial action must be protective of human health and the environment, cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ, as a principal element, treatment which permanently and significantly reduces the volume, toxicity, or mobility of the hazardous substances, pollutants and contaminants at a site. CERCLA §121(d), 42 U.S.C. §9621(d), further specifies that a remedial actions must attain a level or standard of control of the hazardous substances, pollutants, and contaminants, which at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA §121(d)(4),42 U.S.C. §9621(d)(4). While the response measure selected in this document falls within the category of removal action, it is the permanent remedy selected for the soils at the site. As such, it is appropriate to apply the criteria listed in CERCLA Section 121 to the response measure.

EPA's RME evaluated, in detail, eight response measures for addressing soil contamination at the site. Cost and construction time, among other criteria, were evaluated for each response measure. The time to implement a response measure reflects the estimated time required to construct the remedy. The estimates do not include the time to negotiate with the Potentially Responsible Parties, prepare design documents, or procure contracts. Because each response measure is based on a future industrial/commercial land use of the site, each would require institutional controls (i.e., deed restrictions or zoning restrictions) to restrict non-commercial uses of the site, and, in some cases, to protect waste caps from being breached. In addition, all alternatives considered would require five year reviews. When estimating capital costs and total present worth value, a range is reported since the actual cost is dependent on the relative amount of high and low concentration wastes. The eight response measures evaluated are as follows:

Response Measure 1: No Further Action

Estimated Capital Costs:	$ 0
Estimated O&M Costs (30 years):	$ 0
Estimated Total Present Worth Value:	$ 0
Estimated Implementation Period:	No implementation necessary

The Superfund Program requires that the "No-Action" response measure be considered as a baseline for comparison of other soil response measures. Under this response measure, EPA would take no action at the site.

Response Measure 2: Selective Excavation, Consolidation, and Capping

Estimated Capital Cost:	$ 1,339,000
Estimated O&M Costs (30 years):	$ 184,000

Estimated Total Present Worth Value:	$ 1,523,000
Estimated Implementation Period:	8 months

**This estimate is for the soil/membrane cap, an additional $250,000 is estimated for the asphalt cap*

Under Response Measure 2, all site soils and former disposal trench materials containing contaminant concentrations in excess of the Site Worker Cleanup Goals would be excavated. Excavated soil that is in excess of the Construction Worker Cleanup Goals would be consolidated within part of the trench area along with any materials determined to be a hazardous waste. These materials would be covered with a Resource Conservation and Recovery Act (RCRA) quality cap. The remaining soils containing concentrations in excess of the Site Worker Cleanup Goals, and have levels of contamination below the Construction Worker Cleanup Goals, would also be consolidated within the trench area. This portion of the trench would then be covered using a soil cover with an impermeable geomembrane, or an asphalt cap, to be determined during design. A cap would reduce the potential for direct contact with contaminated media and minimize infiltration of storm water into the underlying soils. Excavated areas would then be backfilled with clean fill. Operation and maintenance (O&M) would include bi-monthly inspections, mowing and watering, regrading and revegatation.

Response Measure 3A: Excavation; On-Site Ex-situ Anaerobic Biotreatment; Off-Site Landfilling/Incineration

Estimated Capital Costs:	$ 3,024,000 to $ 5,113,000
Estimated O&M Costs (30 years):	$ 22,000
Estimated Total Present Worth Value:	$ 3,046,000 to $ 5,135,000
Estimated Implementation Period:	34 months

Under Response Measure 3A, all site soils and former disposal trench materials that contain concentrations of the chemicals of concern in excess of the Site Worker Cleanup Goals would be excavated. Excavated soils that are determined to be non-RCRA hazardous and have levels of contamination below the 1,000 ppm treatment level, would be sent to an off-site landfill. The remaining soil would be tested to determine which soils are treatable with bioremediation. Treatable soils would be treated on-site, and the remaining soils would be treated at a permitted off-site incinerator. Soils treated on-site would be backfilled into the previously excavated areas. A bench-scale treatability study and a pilot-scale field test would be required to determine whether biotreatment will reduce the level of contaminants in site soils to below the Site Worker Cleanup Goals. The off-site incinerator would also provide a contingency measure in the event that the biotreatment process proves ineffective. Excavated areas would then be backfilled with clean fill.

Response Measure 3B: Excavation; On-site Ex-situ Anaerobic Biotreatment; Off-site Landfilling/Incineration and Capping

Estimated Capital Costs:	$ 2,414,000 to $ 4,177,000
Estimated O&M Costs (30 years):	$ 236,000*
Estimated Total Present Worth Value:	$ 2,650,000 to $ 4,414,000
Estimated Implementation Period:	36 months

**This estimate is for the soil/membrane cap, an additional $250,000 is estimated for the asphalt cap*

Under Response Measure 3B, all site soils and former disposal trench materials containing contaminants greater than the Site Worker Cleanup Goals would be excavated. Excavated soil which is determined to be non-RCRA hazardous, and contains contaminants at levels less than the Construction Worker Cleanup Goals, would be consolidated within the excavated former disposal trench area and covered with either a soil and impermeable membrane cap or asphalt cap, to be determined during design. Excavated soils and trench materials that are determined to be treatable with biotreatment and contain concentrations of the chemicals of concern in excess of the Construction Worker Cleanup Goals or are determined to be non-RCRA hazardous would be treated by on-site anaerobic bioremediation. The remainder of these higher level wastes which cannot be bioremediated would be sent to a permitted off-site incinerator. Soils and media treated via bioremediation would be backfilled into the previously excavated areas. A bench-scale treatability study and a pilot-scale field test would be required to determine whether biotreatment will reduce the level of contaminants in site soils to below the Site Worker Cleanup Goals. The off-site incinerator would also provide a contingency measure in the event that the treatment process proves ineffective. Since the Construction Worker Cleanup Goals are lower than the New Jersey Impact to Groundwater Cleanup Criteria, backfilling and capping of soils that exhibit contaminant concentrations less than the

Construction Worker Cleanup Goals would help to ensure groundwater is protected in the event of a breach in the cap. The unfilled portions of the excavated areas would then be backfilled with clean fill. O&M would include bi-monthly inspections, mowing and watering, regrading and revegatation.

Response Measure 4A: Excavation; Off-site Low-Temperature Thermal Desorption; Off-site Landfilling/Incineration

Estimated Capital Costs:	\$ 2,621,000 to \$ 4,679,000
Estimated O&M Costs (30 years):	\$ 22,000
Estimated Total Present Worth Value:	\$ 2,643,000 to \$ 4,701,000
Estimated Implementation Period:	8 months

Under Response Measure 4A, all site soils and former disposal trench materials that contain concentrations of the chemicals of concern in excess of the Site Worker Cleanup Goals would be excavated. Excavated soils that are determined to contain levels of contaminants less than the 1,000 ppm treatment level and are not RCRA hazardous waste, would be sent to an off-site landfill. Excavated soils that are determined to be non-RCRA hazardous and more contaminated than the 1,000 ppm treatment level, but remain less contaminated than the treatment ceilings for the low temperature thermal desorption (LTTD) facilities, would be sent off-site for LTTD treatment. The remaining soils, those containing levels of contaminants above the 1,000 ppm treatment level and the LTTD ceiling and/or deemed RCRA hazardous wastes, would be sent to a RCRA permitted off-site incinerator. Following treatment at the LTTD facility, soils may be transported back to the site for use as backfill providing the contaminant levels in the treated soils are less than the Site Worker Cleanup Goals and there are no aesthetic problems (i.e., odor, unwanted debris etc.). This response measure would require pilot-scale treatability studies at selected off-site LTTD facilities to determine if LTTD will reduce the level of contaminants in site soils to below the Site Worker Cleanup Goals. The off-site incinerator would also provide a contingency measure should the LTTD technology prove to be limited in effectiveness. Excavated areas would then be backfilled with clean fill.

Response Measure 4B: Excavation; Off-site Low-Temperature Thermal Desorption; Off-site Landfilling and Incineration of Soils In Excess of the Construction Worker Cleanup Goals; Consolidation and Capping of Remaining On-site Soils Greater Than The Site Worker Cleanup Goals

Estimated Capital Costs:	$ 2,148,000 to $ 3,830,000
Estimated O&M Costs (30 years):	$ 236,000*
Estimated Total Present Worth Value:	$ 2,384,000 to $ 4,066,000
Estimated Implementation Period:	10 months

**This estimate is for the soil/membrane cap, an additional $250,000 is estimated for the asphalt cap*

Under Response Measure 4B, all site soils and former disposal trench materials that contain concentrations of the chemicals of concern in excess of the Site Worker Cleanup Goals would be excavated. Excavated soils that are determined to be non-RCRA hazardous and contain contaminants less than the Construction Worker Cleanup Goals would be consolidated within the former trench area and covered with either an asphalt cap or a soil and impermeable membrane cap. Excavated soils that are determined to be non-RCRA hazardous and contain contaminants greater than the Construction Worker Cleanup Goals, but remain below 1,000 ppm treatment level, would be sent to an off-site landfill. Excavated soils that are determined to be non-RCRA hazardous, and contain contaminants greater than 1,000 ppm treatment level, but remain below the treatment ceiling of the LTTD facility, would be sent off-site for LTTD treatment. The remaining soils, those containing levels of contaminants above the 1,000 ppm treatment level and the LTTD ceiling and/or deemed RCRA hazardous wastes, would be sent to a RCRA permitted off-site incinerator. Following treatment at the LTTD facility, soils may be transported back to the site for use as backfill providing the contaminant levels in the treated soils are less than the Site Worker Cleanup Goals and there are no aesthetic problems (i.e., odor, unwanted debris etc.). This alternative would require pilot-scale treatability studies at selected off-site LTTD facilities to determine if LTTD will reduce the level of contaminants in site soils to below the Site Worker Cleanup Goals. The off-site incinerator would also provide a contingency measure should the LTTD technology prove to be limited in effectiveness. Since the Construction Worker Cleanup Goals are lower than the New Jersey Impact to Groundwater Cleanup Criteria, backfilling and capping of only soils that exhibit contaminant concentrations less than the Construction Worker Cleanup Goals would help to ensure groundwater is protected in the event of a breach in the cap. The remaining unfilled portions of the excavated areas would then be backfilled with clean fill. O&M would include bi-monthly inspections, mowing and watering, regrading and revegatation.

Response Measure 5A: Excavation; Off-site Incineration; Off-site Landfilling

Estimated Capital Costs:	\$ 2,811,000 to \$ 5,251,000
Estimated O&M Costs (30 years):	\$ 22,000
Estimated Total Present Worth Value:	\$ 2,833,000 to \$ 5,273,000
Estimated Implementation Period:	6 months

Under Response Measure 5A, all site soils and former disposal trench materials that contain concentrations of the chemicals of concern in excess of the Site Worker Cleanup Goals would be excavated. Non-hazardous soils containing chemicals of concern in concentrations less than the 1,000 ppm treatment level would be sent for disposal at a permitted off-site landfill. The remaining soils above the 1,000 ppm treatment level and RCRA hazardous wastes (if encountered) would be incinerated at a permitted off-site facility. Excavated areas would then be backfilled with clean fill.

Response Measure 5B: Excavation; Off-site Incineration and Landfilling of Soils In Excess of the Construction Worker Cleanup Goals; and Consolidation and Covering of Remaining On-site Soils Greater Than the Site Worker Cleanup Goals

Estimated Capital Costs:	\$ 2,536,000 to \$ 4,175,000
Estimated O&M Costs (30 years):	\$ 244,000*
Estimated Total Present Worth Value:	\$ 2,780,000 to \$ 4,419,000
Estimated Implementation Period:	8 months

**This estimate is for the soil/membrane cap, an additional \$250,000 is estimated for the asphalt cap*

Under Response Measure 5B, all site soils and former disposal trench materials that contain concentrations of the chemicals of concern in excess of the Site Worker Cleanup Goals would be excavated. Non-RCRA hazardous wastes that contain contaminant levels below the Construction Worker Cleanup Goals would be consolidated within the former trench area and covered with either an asphalt cap or a soil and impermeable membrane cap. Non-RCRA hazardous wastes containing more than the Construction Worker Cleanup Goals, but less than the 1,000 ppm treatment level would be sent to a permitted off-site landfill. The remaining soils, those containing levels of contaminants above the 1,000 ppm treatment level and/or RCRA hazardous wastes, would be sent to a RCRA-permitted off-site incinerator. Since the Construction Worker Cleanup Goals are lower than the New Jersey Impact to Groundwater site Cleanup Criteria, backfilling and capping of only soils that exhibit contaminant concentrations less than the Construction Worker Cleanup Goals would help to ensure groundwater is protected in the event of a breach in the cap. Excavated areas would then be backfilled with clean fill. O&M would include bi-monthly inspections, mowing and watering, regrading and revegatation.

SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

In selecting a remedy, EPA considered the factors set out in CERCLA §121, 42 U.S.C. §9621, by conducting a detailed analysis of the viable remedial response measures pursuant to the NCP, 40 CFR §300.430(e)(9) and OSWER Directive 9355.3-01. The detailed analysis consisted of an assessment of the individual response measure against each of nine evaluation criteria and a comparative analysis focusing upon the relative performance of each response measure against the criteria.

The first two criteria are known as "threshold criteria" because they are the minimum requirements that each response measure must meet in order to be eligible for selection as a remedy:

1. **Overall Protection of Human Health and the Environment** - Addresses whether a response measure provides adequate protection of human health and the environment from unacceptable risks posed by hazardous substance, pollutants, or contaminants present at the site by eliminating, reducing, or controlling exposures through treatment, engineering, or institutional controls.

2. **Compliance with applicable or relevant and appropriate requirements (ARARs)** - Addresses whether the response measure meets all the applicable (legally enforceable), or relevant and

appropriate (pertaining to situations sufficiently similar to those encountered at a Superfund site such that their use is well suited to the site) requirements Federal environmental laws or state environment or facility-siting laws or provides the grounds for invoking one of the six ARAR waivers stated in the NCP.

The next five criteria, criteria 3 through 7, are known as "primary balancing criteria". These criteria are factors with which tradeoffs between response measures are assessed so that the best option will be chosen, given site-specific data and conditions.

3. **Long-term effectiveness and permanence**
   - Refers to the ability of a response measure to maintain reliable protection of human health and the environment over time, once remedial action goals have been met. Permanence for this criterion is viewed along a continuum, and an alternative can be described as offering a greater or lesser degree of permanence.

4. **Reduction of toxicity, mobility, or volume**
   - Assesses the relative performance of a response measure technology's expected ability to reduce the toxicity, mobility or volume of hazardous substances, pollutants or contaminants at the site.

5. **Short-Term Effectiveness**
   - Addresses the adverse impacts on human health and the environment that may be posed in the time it takes to implement the response measure and achieve the desired remediation goals.

6. **Implementability**
   - Looks at the technical and administrative feasibility of the response measure, including the availability of materials and services needed to implement each component of the option in question.

7. **Cost**
   - Includes estimated capital and O&M costs, and net present worth value of capital and O&M costs.

The final two evaluation criteria, criteria 8 and 9, are called "modifying criteria" because new information or comments from the state or the community on the Proposed Plan may modify the preferred response measure or cause another response measure to be considered. These last criteria are:

8. **State acceptance**
   - Indicates whether based on its review of the RI/FS reports and the Proposed Plan, the state supports, opposes, and/or has identified any reservations with the selected response measure.

9. **Community acceptance**
   - Summarizes the public's general response to the response measures described in the Proposed Plan and the RI/FS reports. This assessment includes determining which of the response measures the community supports, opposes, and/or has reservations about.

A comparative analysis of the response measures based upon these nine evaluation criteria is presented below:

Overall Protection of Human Health and the Environment

Response Measure 1: No Action would not be protective of human health and the environment because the site would remain in its current condition. The soils would continue to pose a threat to Trespassers and future Site Workers. Therefore, Response Measure 1 has been eliminated from consideration and will not be discussed further.

Response Measure 2: Selective Excavation, Consolidation, and Capping relies completely on containment and institutional controls to provide protection over time. Deed restrictions would have to be enforced to ensure that the cap is not breached in the future in order for this response measure to be protective.

Response Measure 3A: Excavation; On-site, Ex-situ Anaerobic Biotreatment; Off-site Landfilling /Incineration would eliminate all significant risk to human health and the environment from site contaminants through off-site removal or treatment of contaminated soils that are found to be above the 10^{-6} Site Worker criterion.

Response Measure 3B: Excavation; On-site, Ex-situ Anaerobic Biotreatment; Off-site Landfilling/Incineration and Capping relies partially on containment and institutional controls to provide protection over time. Deed restrictions would have to be enforced to ensure that the cap is not breached in the future in order for this response measure to be protective. The most contaminated soils would be removed or treated, leaving only lower level soils to be capped.

Response Measure 4A: Excavation; Off-site Low Temperature Thermal Desorption; Off-site Landfilling/Incineration would eliminate all significant risk to human health and the environment from site contaminants through off-site removal or treatment of contaminated soils that are found to be above the 10^{-6} Site Worker criterion.

Response Measure 4B: Excavation; Off-site Low Temperature Thermal Desorption; Off-site Landfilling and Incineration; Consolidation and Capping relies partially on containment and institutional controls to provide protection over time. Deed restrictions would have to be enforced to ensure that the cap is not breached in the future in order for this response measure to be protective. The most contaminated soils would be removed or treated, leaving only lower level soils to be capped.

Response Measure 5A: Excavation; Off-site Incineration; Off-site Landfilling would eliminate all significant risk to human health and the environment from site contaminants through off-site removal of contaminated soils that are found to be above the 10^{-6} site worker criterion.

Response Measure 5B: Excavation; Off-site Incineration and Landfilling; and Consolidation and Capping relies partially on containment and institutional controls to provide protection over time. Deed restrictions would have to be enforced to ensure that the cap is not breached in the future in order for this response measure to be protective. The most contaminated soils would be removed or treated, leaving only lower level soils to be capped.

Compliance with ARARs

Actions taken at any Superfund site must meet all applicable or relevant and appropriate requirements of federal and state law or provide grounds for invoking a waiver of these requirements. There are several types of ARARs: chemical-specific, location-specific, and action-specific. Chemical-specific ARARs are usually numerical values which establish the amount or concentrations of a chemical that may be found in, or discharged to, the ambient environment. Location-specific ARARs are restrictions placed on the concentrations of hazardous substances or the conduct of activities solely because they occur in a special location. Action-specific ARARs are technology or activity-specific requirements or limitations related to various activities. Below is a discussion of some of the major ARARs for the Pulverizing Services site; a full list can be found in the RME.

Chemical-Specific ARARs

There are no federal or state promulgated soil cleanup standards. None of the response measures evaluated meet the state soil cleanup criteria for unrestricted use which, while not legally applicable, were considered by EPA. If the state soil criteria are not met, institutional controls could be required by the state. Certain of the wastes on-site may be determined to be hazardous waste, as defined in the Resource Conservation and Recovery Act (RCRA). Therefore, the regulations regarding identification and listing of hazardous waste at 40 CFR Part 261 may also apply if RCRA wastes are found in the trenches during excavation.

Each response measure that includes on-site treatment may result in air emissions. If so, these treatment processes would be subject to federal Clean Air Act requirements, which would regulate emissions from the treatment system.

Location-Specific ARARs

Because a portion of the site is classified as wetlands, all response measures would need to comply with Section 404 of the Clean Water Act and Federal Executive Order 11990 (wetlands protection) which requires federal agencies to take actions to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. Any actions which disturb or impact wetlands would require development of a wetlands mitigation plan. The site is not located in a flood plain and no endangered species have been observed at the site. The cultural resource survey, dated February 1998, determined that there are no historically significant resources at the site.

Action-Specific ARARs

The major action-specific requirements for the various response measures include RCRA requirements, which control the transportation and disposal of hazardous waste (if hazardous waste is determined to be on site) and the National Ambient Air Quality Standards. For example, Response Measure 2 includes excavation and capping of contaminated soil. This response measure would trigger RCRA containment requirements in 40 CFR Part 264. Response

Measures 3A, 3B, 4A, and 4B include on- and off-site treatment. Therefore, these response measures would trigger RCRA treatment requirements in 40 CFR Part 264 and RCRA transporter requirements in 40 CFR Part 263. Any response measure that may result in air emissions would be subject to the federal Clean Air Act requirements which would regulate emissions from the treatment system.

During excavation of waste from the trenches on site, EPA would determine whether the waste is a RCRA-listed hazardous waste. The hazardous waste listings are found in 40 CFR Part 261. Any waste which is determined to be a RCRA-listed hazardous waste, in addition to the other requirements mentioned above, would be subject to the RCRA land disposal restrictions in 40 CFR Part 268. These restrictions prohibit land disposal of certain listed wastes without prior treatment.

Long-Term Effectiveness and Permanence

Response Measure 2: Selective Excavation, Consolidation, and Capping would provide the least amount of long-term effectiveness and permanence. Under this alternative, contaminated soils would remain on site. In addition, institutional controls would need to be employed and enforced in order to ensure that the cap was not breached and rendered ineffective.

Response Measure 3A: Excavation; On-site, Ex-situ Anaerobic Biotreatment; Off-site Landfilling /Incineration provides a high degree of long-term effectiveness by destroying and/or removing waste from the site, but only provides a moderate degree of permanence since some waste may not be destroyed but only contained off site.

Response Measure 3B: Excavation; On-site, Ex-situ Anaerobic Biotreatment; Off-site Landfilling/Incineration and Capping provides a moderate degree of long-term effectiveness by destroying and/or removing the most contaminated waste from the site, but only provides a moderate to low degree of permanence since some waste (possibly some highly contaminated waste) would not be destroyed but only contained both on and off site. Wastes contained on site would require institutional controls to be employed and enforced in order to ensure the that the cap was not breached and/or rendered ineffective.

Response Measure 4A: Excavation; Off-site Low Temperature Thermal Desorption; Off-site Landfilling/Incineration provides a high degree of long-term effectiveness by removing and/or destroying the most contaminated waste from the site, but only provides a moderate to high degree of permanence since some lesser contaminated waste would not be destroyed but only contained off site.

Response Measure 4B: Excavation; Off-site Low Temperature Thermal Desorption; Off-site Landfilling and Incineration; Consolidation and Capping provides a moderate degree of long-term effectiveness by destroying and/or removing the most contaminated waste from the site, but only provides a moderate degree of permanence since some of the low level waste would not be destroyed but only contained on site. Wastes contained on site would require institutional controls to be employed and enforced in order to ensure the that the cap was not breached and therefore rendered ineffective.

Response Measure 5A: Excavation; Off-site Incineration; Off-site Landfilling provides a high degree of long-term effectiveness by removing all contaminated waste from the site, but only provides a moderate to high degree of permanence since some lesser contaminated waste would not be destroyed but only contained off site.

Response Measure 5B: Excavation; Off-site Incineration and Landfilling; and Consolidation and Capping provides a moderate degree of long-term effectiveness by removing the most contaminated waste from the site, and only provides a moderate to degree of permanence since some lesser contaminated waste would be contained on site.

Short-Term Effectiveness

Response Measure 2: Selective Excavation, Consolidation, and Capping can be implemented in approximately 8 months which would greatly reduce the short-term risks. Excavation and construction of the cap would require handling of contaminated soils and dust generation, but these can be controlled through the use of protective equipment, good construction practice and dust suppression. No off-site truck traffic would be required.

Response Measure 3A: Excavation; On-site, Ex-situ Anaerobic Biotreatment; Off-site Landfilling /Incineration can be implemented in approximately 34 months and would require extensive material handling and a long on-site construction phase. Although the contaminant exposures can be reduced through the use of protective equipment, good construction practice and dust suppression, there is also the possibility of a failure in the off-gas collection system. A moderate amount of truck traffic would be required to take contaminated soils to off-site facilities.

Response Measure 3B: Excavation; On-site, Ex-situ Anaerobic Biotreatment; Off-site Landfilling/Incineration; and Capping can be implemented in approximately 36 months and would require the most material handling and the longest on-site construction phase. The contaminant exposures can be reduced through the use of protective equipment, good construction practice and dust suppression. A minimum amount of truck traffic would be required to take contaminated soils to off-site facilities.

Response Measure 4A: Excavation; Off-site Low Temperature Thermal Desorption; Off-site Landfilling/Incineration can be implemented in approximately 8 months which would greatly reduce the short-term risks. Excavation would require handling of contaminated soils and dust generation, but these can be controlled through the use of protective equipment, good construction practice and dust suppression. A large amount of truck traffic would be required to take contaminated soils to off-site facilities.

Response Measure 4B: Excavation; Off-site Low Temperature Thermal Desorption; Off-site Landfilling and Incineration; Consolidation and Capping can be implemented in approximately 10 months, which would help reduce the short-term risks. Excavation and construction of the cap would require handling of contaminated soils and dust generation, but these can be controlled through the use of protective equipment, good construction practice and dust suppression. A moderate amount of truck traffic would be required to take contaminated soils to off-site facilities.

Response Measure 5A: Excavation; Off-site Incineration; Off-site Landfilling can be implemented in approximately 6 months, which would greatly reduce the short-term risks. Excavation would require handling of contaminated soils and dust generation, but these can be controlled through the use of protective equipment, good construction practice and dust suppression. A relatively large amount of truck traffic would be required to take contaminated soils to off-site facilities.

Response Measure 5B: Excavation; Off-site Incineration and Landfilling; and Consolidation and Capping can be implemented in approximately 8 months, which would greatly reduce the short term risks. Excavation and construction of the cap would require handling of contaminated soils and dust generation, but these can be controlled through the use of protective equipment, good construction practice and dust suppression. A moderate amount of truck traffic would be required to take contaminated soils to off-site facilities.

Reduction of Toxicity, Mobility or Volume Through Treatment

Response Measure 2: Selective Excavation, Consolidation, and Capping achieves risk reduction without treatment, entirely by reducing the mobility of the contaminants. The toxicity and volume of the contaminants remain unchanged.

Response Measures 3A, 3B, 4A, 4B, 5A, and 5B: These responses use some type of treatment to destroy the contaminants in the highly contaminated soils (those soils above the 1,000 ppm treatment level) and use on-site capping or off-site landfilling to reduce the contaminant mobility of the remaining soils. There is no difference in the amount of material destroyed among these options.

Implementability

All of the services and materials needed to implement these response measures are readily available commercially. Each response measure utilizes standard technologies for excavation, capping and transportation of soils. With the exception of 3A and 3B (which require treatability studies to determine if they would work on the site soils), all the response measures are technically feasible. Response Measures 3A and 3B will require an on-site treatability study (requiring about 12 months), while Response Measures 4A and 4B require pilot-scale treatability studies (requiring about 2 months) at selected off-site facilities to obtain design parameters for the full-scale system. Response Measures 3A and 3B have complex administrative issues because of the quantity of equipment that needs to be setup at the site and the need to provide substantive compliance with state air emissions regulatory requirements.

Response Measures 2 and 5B are easily implementable using standard excavation technology. Response Measure 5A is the easiest of the response measures to implement.

Cost

The capital, operation and maintenance, and present worth costs are presented below for each response measure. A 5% interest rate and a 30-year O&M period was assumed to calculate the present worth costs for Response Measures 2, 3B, 4B, 5B. For the present worth cost of Response Measures 3A, 4A, 5A, a five percent interest rate and a two-year O&M period was assumed.

Response Measure 2: Selective Excavation, Consolidation, and Capping

Estimated Capital Costs:	$ 1,339,000
Estimated O&M Costs (30 years):	$ 184,000
Estimated Total Present Worth Value:	$ 1,523,000

Response Measure 3A: Excavation; On-site Ex-situ Anaerobic Biotreatment; Off-site Landfilling/Incineration

Estimated Capital Costs:	$ 3,024,000 to $ 5,113,000
Estimated O&M Costs (2 years):	$ 22,000
Estimated Total Present Worth Value:	$ 3,046,000 to $ 5,135,000

Response Measure 3B: Excavation; On-site Ex-situ Anaerobic Biotreatment; Off-site Landfilling/Incineration; and Capping

Estimated Capital Costs:	$ 2,414,000 to $ 4,177,000
Estimated O&M Costs (30 years):	$ 236,000
Estimated Total Present Worth Value:	$ 2,650,000 to $ 4,414,000

Response Measure 4A: Excavation; Off-site Low Temperature Thermal Desorption; Off-site Landfilling/Incineration

Estimated Capital Costs:	$ 2,621,000 to $ 4,679,000
Estimated O&M Costs (2 years):	$ 22,000
Estimated Total Present Worth Value:	$ 2,643,000 to $ 4,701,000

Response Measure 4B: Excavation; Off-site Low Temperature Thermal Desorption; Off-site Landfilling and Incineration; Consolidation and Capping

Estimated Capital Costs:	$ 2,148,000 to $ 3,830,000
Estimated O&M Costs (30 years):	$ 236,000
Estimated Total Present Worth Value:	$ 2,384,000 to $ 4,066,000

Response Measure 5A: Excavation; Off-site Incineration; Off-site Landfilling

Estimated Capital Costs:	$ 2,811,000 to $ 5,251,000
Estimated O&M Costs (2 years):	$ 22,000
Estimated Total Present Worth Value:	$ 2,833,000 to $ 5,273,000

Response Measure 5B: Excavation; Off-site Incineration and Landfilling; and Consolidation and Capping

Estimated Capital Costs:	$ 2,536,000 to $ 4,175,000
Estimated O&M Costs (30 years):	$ 244,000
Estimated Total Present Worth Value:	$ 2,780,000 to $ 4,419,000

State Acceptance

The New Jersey Department of Environmental Protection has elected not to review documents or provide any state oversight for the Pulverizing Services site.

Community Acceptance

EPA solicited input from the Community on the remedial response measures proposed for the site. The attached Responsiveness Summary addresses the comments received by the Community. The community is supportive of EPA's preferred remedial response measure.

SELECTED REMEDY

Based upon consideration of the results of the site investigation, the requirements of CERCLA, the detailed analysis of the response measures, and public comments, EPA has determined that Response Measure 4A is the appropriate remedy for addressing the contaminated soil at the site. Response Measure 4A satisfies the requirements of CERCLA §121 and the NCP's nine evaluation criteria for remedial alternatives, 40 CFR §300.430(e)(9). Response Measure 4A is comprised of the following components:

- Excavation and transportation to an off-site disposal facility of approximately 13,100 cubic yards of contaminated soils determined to be above 0.34 parts per million (ppm) of aldrin, 0.36 ppm of dieldrin, or 17.0 ppm of 4,4'-DDT;

- Disposal of the excavated soils that are below the treatment level of 1,000 ppm chlorinated pesticides, and are not hazardous waste pursuant to the Resource Conservation and Recovery Act (RCRA), at an appropriate off-site landfill;

- Treatment, by off-site thermal desorption, of all contaminated soil above the 1,000 ppm treatment level, that is determined to be treatable by thermal desorption (any contaminated soil above the treatment level that cannot be treated by thermal desorption, and any soils that are deemed RCRA hazardous waste, will be sent to an off-site permitted incinerator for treatment); and

- Backfilling of the excavated areas with clean fill from an off-site location, covering these areas with topsoil, and seeding.

The preferred remedy would allow for future commercial use of the site. This response measure contemplates institutional controls, such as a deed restriction, to ensure that the future land use remains commercial.

EPA selected Response Measure 4A over Response Measures 2, 3B, 4B and 5B because it would remove all contaminated soils from the property and not leave a cap that would further restrict use of the site and require constant maintenance. Response Measure 3A relies on biotreatment technology that has not yet been proven effective on site soils, and at best would require a long period of treatability testing and design. The cost for the Response

Measure 4A is estimated to be between $2,600,000 and $4,700,000. Although the implementation time for Response Measure 4A is two months longer than Response Measure 5A, Response Measure 4A provides an equivalent level of protection at a savings of between $200,000 and $500,000 when compared to the cost for Response Measure 5A, and for this reason, Response Measure 4A is preferred over Response Measure 5A. Response Measure 4A meets all ARARs.

The selection of Response Measure 4A provides the best balance of trade-offs among response measures with respect to the nine evaluation criteria. EPA believes that Response Measure 4A would be protective of human health and the environment, would be cost effective, and would utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

STATUTORY DETERMINATIONS

As was previously noted, CERCLA §121(b)(1) mandates that a remedial action must be protective of human health and the environment, cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ treatment to permanently and significantly reduce the volume, toxicity or mobility of the hazardous substances, pollutants, or contaminants at a site. CERCLA §121(d) further specifies that a remedial action must attain a degree of cleanup that satisfies ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA §121(d)(4).

As mentioned in the "Description of Alternatives" section, because the Pulverizing Services site has not been placed on the NPL, the response measure selected in this document falls within the category of a removal action. However, the selected response measure is the permanent remedy selected for the soils at the site, and as such, it is appropriate to apply the criteria listed in CERCLA Section 121 to the response measure. For the reasons discussed below, EPA has determined that the selected response measure meets the requirements of CERCLA §121.

Protection of Human Health and the Environment

Response Measure 4A would eliminate all significant risk to human health and the environment from site contaminants through off-site removal or treatment of contaminated soils that are found to be above the 10^{-6} Site Worker criterion.

Compliance with ARARs

Chemical-specific ARARS: There are no federal or state promulgated soil cleanup standards. This response measure will not meet the state soil cleanup criteria for unrestricted use which, while not legally applicable, were considered by EPA. If the state soil criteria are not met, institutional controls could be required by the state. Certain of the wastes on site may be determined to be hazardous waste, as defined in the Resource Conservation and Recovery Act (RCRA). If RCRA wastes are encountered in the trenches during excavation, they will be sent to a RCRA-permitted incinerator.

Location-specific ARARs: Since a portion of the site is classified as wetlands, the soil remedy needs to comply with Section 404 of the Clean Water Act and Federal Executive Order 11990 which requires federal agencies to take actions to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. Any actions which disturb or impact wetlands would require development of a wetland mitigation plan. The site is not located in a flood plain and no endangered species have been observed at the site. A cultural resource survey determined that there are no historically significant resources at the site.

Action-specific ARARs: Portions of the Resource Conservation and Recovery Act and its implementing regulations. Specifically, the treatment requirements in 40 CFR Part 261 and the transport requirements. In addition, the land disposal restrictions of 40 CFR Part 263 may prove to be applicable based on site discoveries.

Cost Effectiveness

The total present worth for Response Measure 4A is estimated to be between $2,600,000 and $4,700,000. When looking at the response measures that would not leave contaminants above the Site Worker Cleanup Goals on site, which EPA has determined to be preferable, Response Measure 4A is estimated to be the least expensive. In addition, it is only moderately more expensive than those alternatives that leave contaminants on site to be capped. Therefore, the selected response measure is cost effective as it has been determined to provide the greatest overall long and short term protectiveness for its present worth costs.

Utilization of Permanent Solutions and Alternative Treatment Technologies

Response Measure 4A provides a permanent solution by removing all contaminants above the Site Worker Cleanup Goals from the site. Therefore, there are no concerns that containment options might fail and release contaminants at a future date. While Response Measure 4A does not use alternative treatment technologies, several alternative treatment technologies were screened. None of the alternative treatment technologies that were screened proved feasible for use at the site. Therefore, the selected response measure represents the maximum extent to which permanent solutions and alternative treatment technologies can be utilized in a cost effective manner for the Pulverizing Services site.

Preference for Treatment as a Principal Element

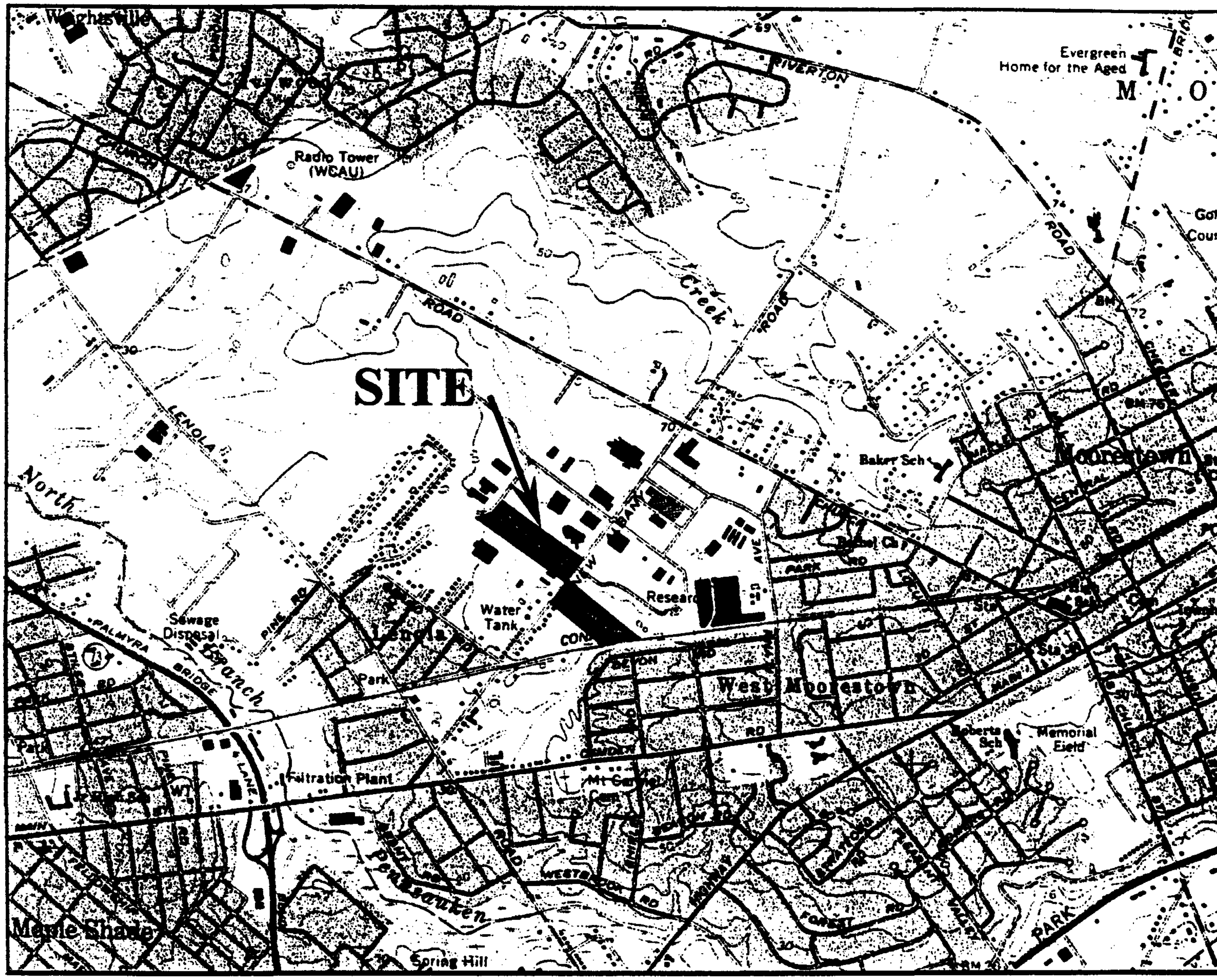
The selected response measure satisfies the statutory preference for treatment as a principal element. Response Measure 4A utilizes both thermal desorption and incineration to destroy the most highly contaminated waste (soils containing greater than 1,000 ppm total chlorinated pesticides) from the site. Furthermore, Response Measure 4A provides the best balance of tradeoffs with respect to the nine evaluation criteria.

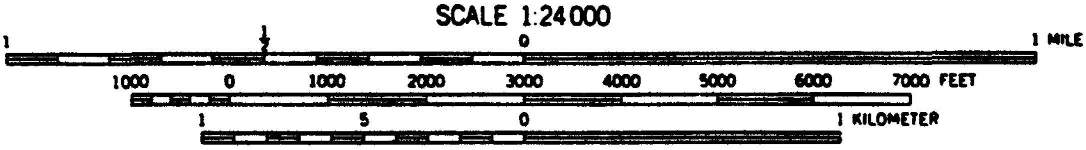
DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for the site was released to the public in January 1999. The Proposed Plan identified Response Measure 4A as the preferred alternative to address the soil contamination at the Pulverizing Services site. Upon review of all comments submitted, EPA determined that no significant changes were necessary to the selected response measure, as it was presented in the Proposed Plan.

APPENDIX I FIGURES

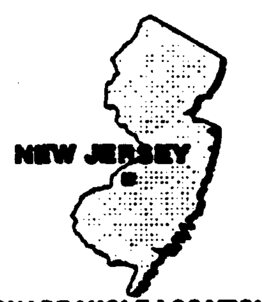
Figure 1 - Site Location Map



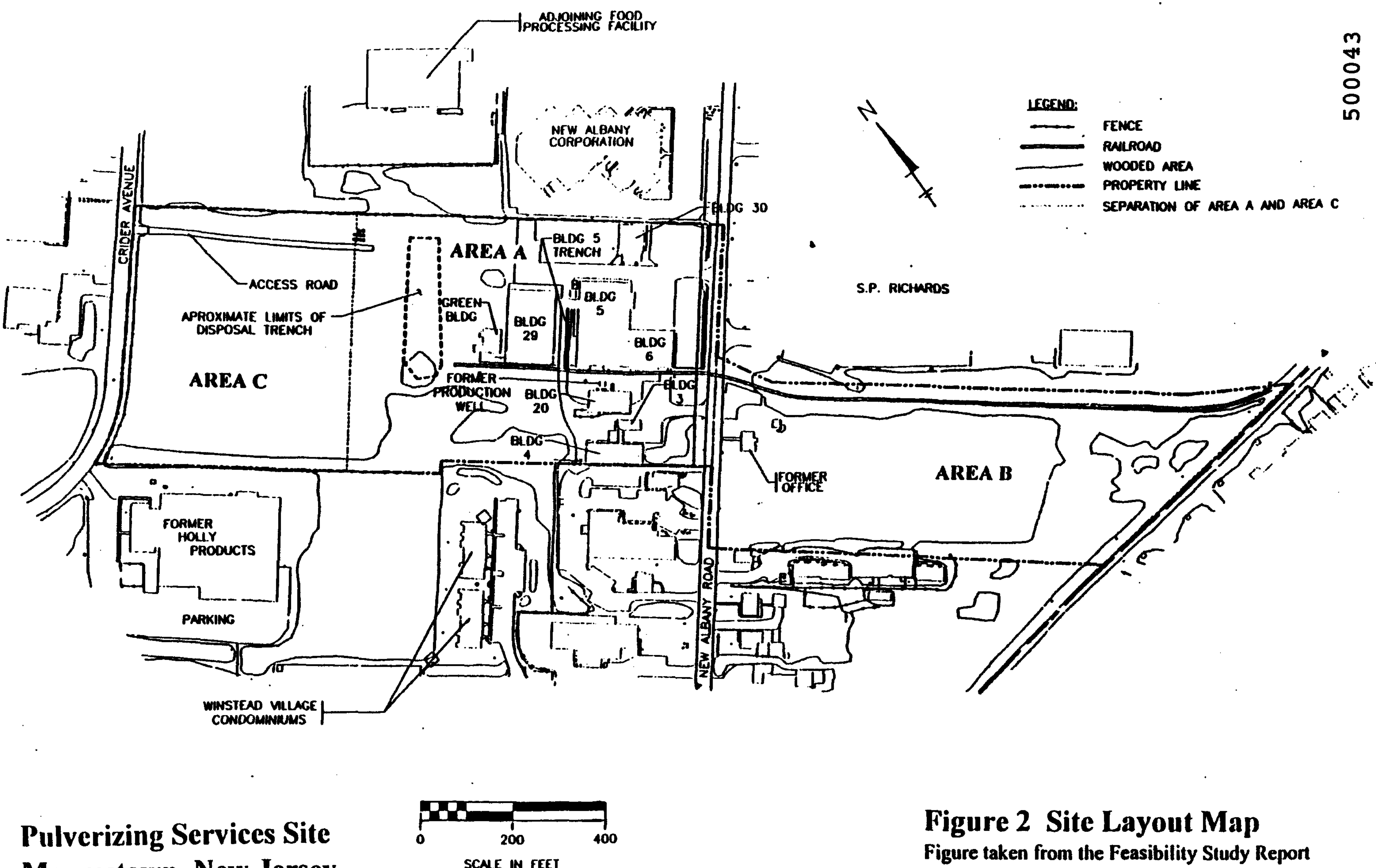


CONTOUR INTERVAL 10 FEET

Referenced U.S.G.S. Map
Moorestown, NJ
USGS 7.5Min. 1965
Photo Revised 1986



QUADRANGLE LOCATION



Pulverizing Services Site
Moorestown, New Jersey

Figure 2 Site Layout Map
Figure taken from the Feasibility Study Report

APPENDIX II TABLES

Table 1-1a. Summary of Chemicals Area A: Surface Soils		
Parameters	Freq of / # of Detects / Samples	Detected Samples Minimum. units - Maximum. units
SVOCs (ug/kg)		
Phenol	3 / 14	410 - 36000
Hexachlorobenzene	2 / 14	310 J - 200000 D
Di-N-Butylphthalate	1 / 14	312.50 B - 312.50 B
Pesticides / PCBs (ug/kg)		
Lindane, Total	1 / 14	33000 J - 33000 J
Aldrin	**1 / 14**	**69000 J - 69000 J**
Endosulfan I	1 / 14	43.75 - 43.75
Dieldrin	**6 / 13**	**750 J - 2200000**
4, 4' - DDE	11 / 14	280 - 24000 J
Endrin, Total	1 / 14	355 X - 355 X
4, 4' - DDD	11 / 14	350 JN - 360000 JN
4, 4' - DDT	**14 / 14**	**2500 D - 6800000 D**
Methoxychlor	1 / 14	4900 X - 4900 X
Endrin Ketone	1 / 14	80000 J - 80000 J
Sevin	5 / 14	41 - 510
Malathion	3 / 14	23 P - 260 P
Inorganic Analytes (mg/kg)		
Aluminum	9 / 12	2345 - 12300
Arsenic	15 / 15	2.20 - 132.00
Barium	8 / 12	38.80 B - 79.00
Beryllium	2 / 12	0.36 B - 1.80
Cadmium	4 / 15	1.60 - 6.30
Calcium	9 / 12	79.80 B - 9600
Chromium	15 / 15	5.30 - 96.50
Hexavalent Chromium	2 / 14	1.15 J - 2.20 J
Cobalt	5 / 12	2.00 B - 4.90 B
Iron	9 / 12	9430 - 62200
Lead	15 / 15	17.60 - 480.50 J
Magnesium	9 / 12	197.50 B - 5140.00
Manganese	6 / 12	32.60 - 331.00
Mercury	6 / 12	0.13 - 0.94
Nickel	7 / 12	5.00 B - 9.80 B
Potassium	9 / 12	442 B - 1070 B
Selenium	4 / 12	0.72 B - 15.20
Sodium	9 / 12	169 B - 375 B
Thallium	3 / 12	0.95 B - 2.30
Vanadium	9 / 12	10.10 B - 33.8
Zinc	9 / 12	8.85 - 88.50
Dioxin (ug/kg)		
Octachlorodibenzo-P-Dio	4 / 4	2.70 J - 12.00

Bolded parameters were chosen as "chemicals of concern" in EPA's Risk Assessment.

Table 1-1b. Summary of Chemicals Area A: Subsurface Soils		
Parameters	Freq of / # of Detects / Samples	Detected Samples Minimum, units - Maximum, units
VOCs (ug/kg)		
Methylene Chloride	5 / 15	9.00 - 110.00
Acetone	7 / 15	10.50 B - 95.00
Toluene	1 /15	7.00 - 7.00
SVOCs (ug/kg)		
Phenol	2 / 15	410 - 810
Di-N-Butylphthalate	1 / 15	4200 B - 4200 B
Pesticides / PCBs (ug/kg)		
Alpha - BHC	**17 / 46**	**12 - 14700**
Beta - BHC	4 / 46	20 - 2300
Delta - BHC	8 / 46	10 - 290 J
Lindane, Total	12 / 46	9.00 - 6000.00
Aldrin	**2 / 46**	**22 - 6900**
Endosulfan I	3 / 46	17 - 230
Dieldrin	**8 / 46**	**22 - 63900**
4, 4' - DDE	6 / 46	35 - 8200
4, 4' - DDD	12 / 46	27 CJN - 22000
4, 4' - DDT	**29 / 46**	**30 - 442000**
Sevin	19 / 46	100 - 230000
Malathion	1 / 46	70 - 70
Inorganic Analytes (mg/kg)		
Aluminum	8 / 13	2570 - 10900
Arsenic	**9 / 14**	**3.10 - 24.80**
Barium	7 / 13	30 - 70
Beryllium	2 / 13	0.70 - 1.00
Calcium	8 / 13	30 - 610
Chromium	16 / 16	4.00 - 47.00
Cobalt	1 / 13	7.00 - 7.00
Copper	6 / 7	3.00 - 23.00
Iron	8 / 13	3450 - 17600
Lead	16 / 16	2.40 - 124.00 J
Magnesium	8 / 13	70 - 840
Manganese	**8 / 13**	**6.00 - 184.00**
Mercury	1 / 13	0.12 - 0.12
Nickel	4 / 13	5.00 - 11.00
Potassium	8 / 13	130 - 1420
Selenium	1 / 13	0.90 B - 0.90 B
Sodium	2 / 13	80 - 168 B
Vanadium	7 / 13	9.00 - 41.00
Zinc	8 / 13	6.00 - 90.00

Bolded parameters were chosen as "chemicals of concern" in EPA's Risk Assessment.

Table 1-2a. Summary of Chemicals Area B: Surface Soils		
Parameters	Freq of / # of Detects / Samples	Detected Samples Minimum, units - Maximum, units
SVOCs (ug/kg)		
Fluoranthene	1 / 7	3550 - 3550
Pyrene	1 / 7	2950 - 2950
Benzo(a)anthracene	1 / 7	2050 - 2050
Chrysene	1 / 7	3000 - 3000
Benzo(b)fluoranthene	**2 / 7**	**360 - 4850**
Benzo(k)fluoranthene	1 / 7	1700 - 1700
Benzo(a)pyrene	**1 / 7**	**1300 - 1300**
Indeno(1, 2, 3-CD)pyrene	1 / 7	975 - 975
Benzo(g, h, i)perylene	1 / 7	547.50 - 547.50
Pesticides / PCBs (ug/kg)		
Beta - BHC	1 / 7	305 - 305
Endosulfan I	1 / 7	417.50 - 417.50
4, 4' - DDE	**7 / 7**	**150 - 20000**
4, 4' - DDD	**6 / 7**	**150 JN - 15000 JN**
4, 4' - DDT	**7 / 7**	**190 - 280000 D**
Sevin	2 / 7	227.50 - 4212.50
Malathion	2 / 7	18.25 - 19.00 P
Inorganic Analytes (mg/kg)		
Aluminum	2 / 6	7770 - 11200
Arsenic	**7 / 7**	**3.95 - 15.25**
Barium	2 / 6	60.00 - 63.10
Calcium	2 / 6	313 B - 1310
Chromium	7 / 7	9.10 - 22.30
Hexavalent Chromium	3 / 7	0.80 J - 3.10 J
Cobalt	2 / 6	2.50 B - 3.60 B
Iron	2 / 6	12700 - 15500
Lead	7 / 7	28.90 J - 88.10
Magnesium	2 / 6	858 B - 1070 B
Manganese	**2 / 6**	**131 - 159**
Mercury	2 / 6	0.19 - 1.10
Nickel	2 / 6	6.50 B - 8.60 B
Potassium	2 / 6	683 B - 833 B
Selenium	1 / 6	1.10 B - 1.10 B
Sodium	2 / 6	189 B - 213 B
Vanadium	2 / 6	22.60 - 29.30
Zinc	2 / 6	32.60 -69.60
Dioxin (ug/kg)		
Octachlorodibenzo-P-Dio	**3 / 3**	**1.10 J - 11.00**

Bolded parameters were chosen as "chemicals of concern" in EPA's Risk Assessment.

Table 1-2b. Summary of Chemicals Area B: Subsurface Soils		
Parameters	Freq of / # of Detects / Samples	Detected Samples Minimum, units - Maximum, units
VOCs (ug/kg)		
Acetone	1 / 3	46.00 - 46.00
SVOCs (ug/kg)		
Butylbenzylphthalate	1 / 2	1000 J - 1000 J
Bis(2-Ethylhexyl)phthalate	1 / 2	1400 J - 1400 J
Pesticides / PCBs (ug/kg)		
Alpha - BHC	1 / 7	12 - 12
Beta - BHC	2 / 7	24 - 180
4, 4' - DDE	**2 / 7**	**720 - 226000**
4, 4' - DDD	3 / 7	31 - 1940
4, 4' - DDT	**6 / 7**	**196 - 1240000**
Inorganic Analytes (mg/kg)		
Aluminum	1 / 2	10800 - 10800
Arsenic	**1 / 2**	**3.60 - 3.60**
Beryllium	1 / 2	0.80 - 0.80
Calcium	1 / 2	20 - 20
Chromium	2 / 2	14.10 - 17.00
Copper	1 / 1	25 - 25
Iron	1 / 2	21100 - 21100
Lead	2 / 2	4.50 - 5.60 J
Magnesium	1 / 2	370 - 370
Manganese	1 / 2	63 - 63
Mercury	1 / 2	0.08 - 0.08
Nickel	1 / 2	6.00 - 6.00
Potassium	1 / 2	350 - 350
Vanadium	1 / 2	26 - 26
Zinc	1 / 2	14 - 14

Bolded parameters were chosen as "chemicals of concern" in EPA's Risk Assessment.

Table 1-3a. Summary of Chemicals Area C: Surface Soils		
Parameters	Freq of / # of Detects / Samples	Detected Samples Minimum. units - Maximum. units
SVOCs (ug/kg)		
Di-N-Butylphthalate	3 / 7	470 B - 2205
Pesticides / PCBs (ug/kg)		
4, 4' - DDE	6 / 7	37 - 1200 CD
4, 4' - DDD	4 / 7	16 JN - 500 J
4, 4' - DDT	**7 / 7**	**22 B - 3800 J**
Inorganic Analytes (mg/kg)		
Aluminum	2 / 6	5850 - 7090
Arsenic	**7 / 7**	**5.10 - 22.70**
Barium	1 / 6	36.50 B - 36.50 B
Beryllium	**1 / 6**	**0.34 B - 0.34 B**
Calcium	2 / 6	431 B - 466 B
Chromium	7 / 7	10.90 - 16.90
Hexavalent Chromium	1 / 7	1.40 J - 1.40 J
Cobalt	2 / 6	3.40 B - 4.50 B
Iron	2 / 6	10100 - 16200
Lead	6 / 7	16.90 - 59.00
Magnesium	2 / 6	651 B - 829 B
Manganese	**2 / 6**	**246 - 285**
Nickel	2 / 6	6.70 B - 8.30 B
Potassium	2 / 6	530 B - 816 B
Selenium	1 / 6	0.99 B - 0.99 B
Sodium	2 / 6	153 B - 209 B
Vanadium	**2 / 6**	**19.80 - 46.40**
Zinc	2 / 6	33.90 - 51.30
Dioxin (ug/kg)		
Octachlorodibenzo-P-Dio	**3 / 3**	**12 - 14**

Bolded parameters were chosen as "chemicals of concern" in EPA's Risk Assessment.

Table 1-4. Summary of Chemicals Area A & C: Combined Surface Soils		
Parameters	Freq of / # of Detects / Samples	Detected Samples Minimum, units - Maximum, units
SVOCs (ug/kg)		
Phenol	3 / 21	410 - 36000
Hexachlorobenzene	2 / 21	310 J - 200000 D
Di-N-Butylphthalate	4 / 21	312.50 B - 2205.00
Pesticides / PCBs (ug/kg)		
Lindane, Total	1 / 21	33000 J - 33000 J
Aldrin	**1 / 21**	**69000 J - 69000 J**
Endosulfan I	1 / 21	43.75 - 43.75
Dieldrin	**6 / 20**	**750 J - 2200000**
4, 4' - DDE	17 / 21	37 - 24000 J
Endrin, Total	1 / 21	355 X - 355 X
4, 4' - DDD	15 / 21	16 JN - 360000 JN
4, 4' - DDT	**21 / 21**	**22 B - 6800000 D**
Methoxychlor	1 / 21	4900 X - 4900 X
Endrin Ketone	1 / 21	80000 J - 80000 J
Sevin	5 / 21	41 - 510
Malathion	3 / 21	23 P - 260 P
Inorganic Analytes (mg/kg)		
Aluminum	11 / 18	2345 - 12300
Arsenic	22 / 22	2.20 - 132.00
Barium	9 / 18	36.50 B - 79.00
Beryllium	3 / 18	0.34 B - 1.80
Cadmium	4 / 22	1.60 - 6.30
Calcium	11 / 18	79.80 B - 9600.00
Chromium	22 / 22	5.30 - 96.50
Hexavalent Chromium	3 / 21	1.15 J - 2.20 J
Cobalt	7 / 18	2.00 B - 4.90 B
Iron	11 / 18	9430 - 62200
Lead	21 / 22	16.90 - 480.50 J
Magnesium	11 / 18	197.50 B - 5140.00
Manganese	8 / 18	32.60 - 331.00
Mercury	6 / 18	0.13 - 0.94
Nickel	9 / 18	5.00 B - 9.80
Potassium	11 / 18	442 B - 1070 B
Selenium	5 / 18	0.72 B - 15.20
Sodium	11 / 18	153 B - 375 B
Thallium	3 / 18	0.95 B - 2.30
Vanadium	11 / 18	10.10 B - 46.40
Zinc	11 / 18	8.85 - 88.50
Dioxin (ug/kg)		
Octachlorodibenzo-P-Dio	7 / 7	2.70 J - 14.00

Bolded parameters were chosen as "chemicals of concern" in EPA's Risk Assessment.

Table 2-1. Combined Carcinogenic Risk Surface Soil Pathways				
Area Surface Soil	Receptor Population	Exposure Route	Individual Cancer Risk	Chemicals Contributing the Greatest Amount to Risk
Area A	Area Residents / Trespassers: Children (12 - 17 yrs. old)	Ingestion	1.3E-03	Dieldrin
		Inhalation of Particulates	3.7E-07	- -
		Total Carcinogenic Risk =	1.3E-03	Dieldrin
Area B	Area Residents / Trespassers: Children (12 - 17 yrs. old)	Ingestion	4.9E-06	- -
		Dermal Contact	2.5E-08	- -
		Total Carcinogenic Risk =	4.9E-06	- -
Area C	Area Residents / Trespassers: Children (12 - 17 yrs. old)	Ingestion	1.3E-06	- -
		Dermal Contact	3.2E-08	- -
		Total Carcinogenic Risk =	1.3E-06	- -
Areas A & C	Residents: Adults	Ingestion	1.8E-02	Aldrin, Dieldrin, 4,4'-DDT
		Inhalation of Particulates	4.8E-05	- -
		Total Carcinogenic Risk =	1.8E-02	Dieldrin, 4,4'-DDT
	Children (0 - 6 yrs. old)	Ingestion	4.2E-02	Aldrin, Dieldrin, 4,4'-DDT
		Inhalation of Particulates	4.0E-05	- -
		Total Carcinogenic Risk =	4.2E-02	Aldrin, Dieldrin, 4,4'-DDT
Area B	Residents: Adults	Ingestion	6.9E-05	- -
		Dermal Contact	4.5E-07	- -
		Inhalation of Particulates	3.9E-07	- -
		Total Carcinogenic Risk =	7.0E-05	- -
	Children (0 - 6 yrs. old)	Ingestion	1.6E-04	- -
		Dermal Contact	1.3E-07	- -
		Inhalation of Particulates	3.3E-07	- -
		Total Carcinogenic Risk =	1.6E-04	- -
Area A	Site Workers / Employees	Ingestion	6.8E-03	Aldrin, Dieldrin, 4,4'-DDT
		Dermal Contact	1.6E-05	- -
		Total Carcinogenic Risk =	6.8E-03	Aldrin, Dieldrin, 4,4'-DDT
Area B	Site Workers / Employees	Ingestion	2.6E-05	- -
		Dermal Contact	1.4E-07	- -
		Inhalation of Particulates	1.3E-07	- -
		Total Carcinogenic Risk =	2.6E-05	- -
Area C	Site Workers / Employees	Ingestion	7.0E-06	- -
		Dermal Contact	1.8E-07	- -
		Inhalation of Particulates	1.3E-07	- -
		Total Carcinogenic Risk =	7.3E-06	- -

Table 2-2. Combined Carcinogenic Risk Subsurface Soil Pathways				
Area Subsurface Soil	Receptor Population	Exposure Route	Individual Cancer Risk	Chemicals Contributing the Greatest Amount to Risk
Area A	Construction Workers	Ingestion	4.0E-06	- -
		Inhalation of Particulates	1.8E-09	- -
		Total Carcinogenic Risk =	4.0E-03	- -
Area B	Construction Workers	Ingestion	8.8E-06	- -
		Inhalation of Particulates	2.0E-09	- -
		Total Carcinogenic Risk =	8.8E-06	- -

Table 3-1. Combined Non-Carcinogenic Hazard Index Values Surface Soil Pathways				
Area Surface Soil	Receptor Population	Exposure Route	Hazard Index	Chemicals Contributing the Greatest Amount to Hazard Index Values
Area A	Area Residents / Trespassers: Children (12 - 17 yrs. old)	Ingestion	2.3E+01	Dieldrin, 4, 4'-DDT
		Inhalation of Particulates	NA	- -
		Total Carcinogenic Risk =	2.3E+01	Dieldrin, 4, 4'-DDT
Area B	Area Residents / Trespassers: Children (12 - 17 yrs. old)	Ingestion	2.5E-01	- -
		Dermal Contact	NA	- -
		Total Carcinogenic Risk =	2.5E-01	- -
Area C	Area Residents / Trespassers: Children (12 - 17 yrs. old)	Ingestion	5.4E-02	- -
		Dermal Contact	NA	- -
		Total Carcinogenic Risk =	5.4E-02	- -
Areas A & C	Residents: Adults	Ingestion	8.2E+01	Aldrin, Dieldrin, 4,4'-DDT
		Inhalation of Particulates	NA	- -
		Total Carcinogenic Risk =	8.2E+01	Aldrin, Dieldrin, 4,4'-DDT
	Children (0 - 6 yrs. old)	Ingestion	7.7E+02	Aldrin, Dieldrin, 4,4'-DDT
		Inhalation of Particulates	NA	- -
		Total Carcinogenic Risk =	7.7E+02	Aldrin, Dieldrin, 4,4'-DDT
Area B	Residents: Adults	Ingestion	8.8E-01	- -
		Dermal Contact	NA	- -
		Inhalation of Particulates	4.1E-02	- -
		Total Carcinogenic Risk =	9.2E-01	- -
	Children (0 - 6 yrs. old)	Ingestion	8.2E+00	4, 4'-DDT
		Dermal Contact	NA	- -
		Inhalation of Particulates	1.4E-01	- -
		Total Carcinogenic Risk =	8.3E+00	4, 4'-DDT
Area A	Site Workers / Employees	Ingestion	2.9E+01	Aldrin, Dieldrin, 4,4'-DDT
		Dermal Contact	NA	- -
		Total Carcinogenic Risk =	2.9E+01	Aldrin, Dieldrin, 4,4'-DDT
Area B	Site Workers / Employees	Ingestion	3.1E-01	- -
		Dermal Contact	NA	- -
		Inhalation of Particulates	1.3E-02	- -
		Total Carcinogenic Risk =	3.2E-01	- -
Area C	Site Workers / Employees	Ingestion	6.8E-02	- -
		Dermal Contact	NA	- -
		Inhalation of Particulates	2.3E-02	- -
		Total Carcinogenic Risk =	9.1E-02	- -

Table 3-2. Combined Non-Carcinogenic Hazard Index Values Subsurface Soil Pathways				
Area Subsurface Soil	Receptor Population	Exposure Route	Hazard Index	Chemicals Contributing the Greatest Amount to Hazard Index Values
Area A	Construction Workers	Ingestion Inhalation of Particulates **Total Carcinogenic Risk =**	1.3E+00 NA 1.3E+00	4, 4'-DDT - - 4, 4'-DDT
Area B	Construction Workers	Ingestion Inhalation of Particulates **Total Carcinogenic Risk =**	3.0E+00 NA 3.00E+00	4,4'-DDT - - 4,4'-DDT

APPENDIX III
ADMINISTRATIVE RECORD INDEX

PULVERIZING SERVICES SITE
ADMINISTRATIVE RECORD FILE
INDEX OF DOCUMENTS

2.0 REMOVAL RESPONSE

2.1 Sampling and Analysis Plans

P. 200001-200023 Letter report to Mr. John Osolin, Remedial Project Manager, U.S. EPA, Region II, from Mr. Peter L. Sudano, PG, CHMM, Senior Project Manager, ERM-EnviroClean, Inc., re: Work Plan for Off-Site Contaminated Soil Removal, Pulverizing Services Site, Moorestown, New Jersey, July 17, 1995.

2.2 Sampling and Analysis Data

Report: On Scene Coordinator's Report, Pulverizing Services Removal Action, Moorestown, Burlington County, New Jersey, prepared for Mr. Eugene Dominach, Site Mitigation Section, Removal Action Branch, U.S. EPA Region II, prepared by Mr. Jeff M. Bechtel, Technical Assistance Team, Roy F. Weston, Inc., February 13, 1989. (Note: This document is located in the Removal Administrative Record, USEPA Removal Records Center, 2890 Woodbridge Avenue, Edison, New Jersey.)

Report: Site Clean-Up Report, Pulverizing Services Inc., Moorestown, New Jersey, Volume I, prepared for U.S. EPA, Region II, prepared by Clean Harbors Environmental Services Companies, Inc., December 6, 1991. (Note: This document is located in the Removal Administrative Record, USEPA Removal Records Center, 2890 Woodbridge Avenue, Edison, New Jersey.)

P. 200024-200288 Report: Site Clean-Up Report, Pulverizing Services Inc., Moorestown, New Jersey, Volume II, prepared for U.S. EPA, Region II, prepared by Clean Harbors Environmental Services Companies, Inc., December 6, 1991.

P. 200289- 200387 Letter report to Mr. John Osolin, Remedial Project Manager, U.S. EPA, Region II, from Mr. Daniel L. Bonk, P.E., Baker Environmental, Inc. re: Results of Soil Excavation and Confirmation Sampling at the Adjoining Winstead Village Condominium Property Pulverizing Services Site, Moorestown, New Jersey, January 29, 1997.

2.7 Correspondence

P. 200388- 200553 Letter to Mr. John Osolin, U.S. EPA, Region II, from Mr. A. Douglas Weeks, Jr., Project Manager, and Mr. Daniel J. Welshons, Safety and Health Manager, ICF Kaiser, re: Response to Comments - Pulverizing Services Site Health and Safety Plan, Pulverizing Services Site, Moorestown, New Jersey, November 30, 1998. (Attachment: Health and Safety Plan Addendum, Pulverizing Services Site, Moorestown, New Jersey, November 30, 1998.)

3.0 REMEDIAL INVESTIGATION

3.1 Sampling and Analysis Plans

P. 300001- 300017 Report: Field Summary Report Oversight Of Sampling Activities, October 26 & 27, 1994, Pulverizing Services Site, Moorestown, New Jersey, prepared for U.S. Environmental Protection Agency, Office of Waste Programs Enforcement, prepared by CDM Federal Programs, November 1, 1994.

P. 300018- 300043 Report: Field Summary Report Oversight Of Sampling Activities, December 3-7, 1994, Pulverizing Services Site, Moorestown, New Jersey, prepared for U.S. Environmental Protection Agency, Office of Waste Programs Enforcement, prepared by CDM Federal Programs, December 12, 1994.

P. 300044- 300072 Report: Field Summary Report Oversight Of Sampling Activities, December 12-16, 1994, Pulverizing Services Site, Moorestown, New Jersey, prepared for U.S. Environmental Protection Agency, Office of Waste Programs Enforcement, prepared by CDM Federal Programs, December 20, 1994.

P. 300073- 300085 Report: Field Summary Report Oversight Of Monitoring Well Installation Activities, January 24-26, 1995, Phase II Site Investigation, Pulverizing Services Site, Moorestown, New Jersey, prepared for U.S. Environmental Protection Agency, Office of Waste Programs Enforcement, prepared by CDM Federal Programs, January 27, 1995.

P. 300086- 300093 Report: Field Summary Report Oversight Of Off-Site Soil Screening And Sampling, March 14 and 15 1995, Phase II Site Investigation, Pulverizing Services Site, Moorestown, New Jersey, prepared for U.S. Environmental Protection Agency, Office of Waste Programs Enforcement, prepared by CDM Federal Programs, March 23, 1995.

3.3 Work Plans

300094- 300141 Plan: Work Plan Supplemental Phase II Site Investigation, prepared by McLaren/Hart, April 8, 1996.

3.4 Remedial Investigation Reports

P. 300142- 300239 Plan: Final Quality Assurance/Quality Control Plan, Phase I Study Area Investigation, Pulverizing Services Site, Moorestown, New Jersey, prepared by Paul C. Rizzo Associates, Inc., January 1990.

P. 300240- 300453 Report: Phase I Site Investigation Report, Volume I Text, Tables Figures and Appendices A through D, Phase I Study Area Investigation, Pulverizing Services Site, Moorestown, New Jersey, prepared for PPG Industries, Inc., Pittsburgh, Pennsylvania prepared by Paul C. Rizzo Associates, Inc., April 1993.

P. 300454- 301589 Report: Phase I Site Investigation Report, Volume II Appendices E through G, Phase I Study Area Investigation, Pulverizing Services Site, Moorestown, New Jersey, prepared for PPG Industries, Inc., Pittsburgh, Pennsylvania prepared by Paul C. Rizzo Associates, Inc. April 1993.

P. 301590-302272 Report: Phase II Site Investigation, Work Plan, Quality Assurance/Quality Control Plan, Health and Safety Plan, prepared for PPG Pulverizing Services Facility, Moorestown, New Jersey, prepared by McLaren/Hart Environmental Engineering Corporation, August 1994. (Note: Pages 301742-301914 of this document are **CONFIDENTIAL**. They are located at the U.S. EPA Superfund Records Center, 290 Broadway, 18th Fl., N.Y., N.Y. 10007-1866.)

P. 302273-302938 Report: Phase II Site Investigation Report, Pulverizing Services Site, Moorestown, New Jersey, prepared for PPG Industries, Inc., Pittsburgh, Pennsylvania, prepared by McLaren/Hart Environmental Engineering Corporation, May 1, 1995.

P. 302939-302966 Report: Wetlands Evaluation and Habitat Survey Report, PPG Pulverizing Services Site, Moorestown, New Jersey, prepared for PPG Industries, Inc., prepared by McLaren/Hart Environmental Engineering Corporation, July 16, 1996.

3.5 Correspondence

P. 302967-302989 Letter to Mr. John Osolin, U.S. EPA, Region II, from Mr. Daniel L. Bonk, P.E., Baker Environmental, Inc., re: Off-Site Water Well Survey, Pulverizing Services Sites, Moorestown, New Jersey, January 10, 1996. (Note: Pages 302969-302979 of this document are **CONFIDENTIAL**. They are located at the U.S. EPA Superfund Records Center, 290 Broadway, 18th Fl., N.Y., N.Y. 10007-1866.)

4.0 FEASIBILITY STUDY

4.3 Feasibility Study Report

P. 400001-400146 Report: Response Measures Evaluation Report, Pulverizing Services Site, Moorestown, New Jersey, prepared for PPG Industries, Inc., prepared by ICF Kaiser Engineers, Inc., December 15, 1997.

7.0 ENFORCEMENT

7.2 Endangerment Assessments

P. 700001-700281 Report: Final Endangerment Assessment, Pulverizing Services Site, Moorestown, New Jersey, Volume I of III, prepared for U.S. EPA, prepared by CDM Federal Programs Corporation, February 2, 1996.

P. 700282-700478 Report: Final Endangerment Assessment, Pulverizing Services, Site, Moorestown, New Jersey, Volume II of III, prepared for U.S. EPA, prepared by CDM Federal Programs Corporation, February 2, 1996.

P. 700479-700778 Report: Final Endangerment Assessment, Pulverizing Services, Site, Moorestown, New Jersey, Volume III of III, prepared for U.S. EPA, prepared by CDM Federal Programs Corporation, February 2, 1996.

P. 700779-700790 Letter to Mr. Mark Austin, ARCS II Regional Officer, U.S. EPA Region II, from Mr. Robert D. Goltz, P.E., ARCS II Program Manager, re: Addendum to the Final Endangerment Assessment, Document Control No.: 7720-064-RA-CNSZ, August 19, 1997. (Attachment: Addendum To The Final Endangerment Assessment, Pulverizing Services Site, Moorestown, New Jersey, August 19, 1997.)

10.0 PUBLIC PARTICIPATION

10.2 Community Relations Plans

P. 10.00001 10.00007 Plan: Community Relations Plan, Pulverizing Services Site, Moorestown, New Jersey, prepared by U.S. EPA Region II, August 1998.

APPENDIX IV
RESPONSIVENESS SUMMARY

DECISION DOCUMENT
Responsiveness Summary

Pulverizing Services Site

Moorestown, Burlington County, New Jersey

As part of its public participation responsibilities, the U.S. Environmental Protection Agency (EPA) held a public comment period from January 19, 1999 through February 18, 1999, for interested parties to comment on EPA's Proposed Plan for the Pulverizing Services site in Moorestown, New Jersey. The Proposed Plan described the alternatives that EPA considered for remediating the contaminated soils at the site.

On January 27, 1999, EPA conducted a public meeting in the court room at 11 West Street in Moorestown, New Jersey. During the public meeting, representatives from EPA discussed the preferred response measure, answered questions, and received oral and written comments on the response measure recommended in the Proposed Plan and other remedial response measures under consideration.

In addition to comments received during the public meeting, EPA received written comments throughout the public comment period. EPA's responses to significant comments, both oral and written, received during the public meeting and public comment period, are summarized in this Responsiveness Summary. All comments summarized in this document were factored into EPA's final determination of a remedial response measure for cleaning up the site. EPA's selected response measure for the site is described in the Decision Summary of the Decision Document.

This Responsiveness Summary is divided into the following sections.

- **Overview:** This section discusses EPA's preferred response measure.
- **Background:** This section briefly describes community relation activities for the Pulverizing Services site.
- **Response to Written Comments from Potentially Responsible Parties:** This section provides responses to comments received from the Pulverizing Services site Potentially Responsible Parties (PRP) Group during the public comment period.
- **Public Meeting Comments and EPA's Responses:** This section provides summary of commenters' major issues and concerns, and expressly acknowledges and responds to all significant comments raised at the January 27, 1999, public meeting.

- **Response to Written Comments**: This section provides a summary of, and responses to, comments received in writing during the public comment period.

Appendix A:	Transcript of the January 27, 1999, public meeting.
Appendix B:	Written comments received by EPA during the public comment period.
Appendix C:	Proposed Plan.
Appendix D:	Public Notice printed in the January 17, 1999, Burlington County Times.

I. Overview

At the initiation of the public comment period on January 17, 1999, EPA presented its preferred response measure for the Pulverizing Services site. The proposed plan identified the preferred remedy as Response Measure 4A. Response Measure 4A is comprised of the following components:

- Excavation and transportation to an off-site disposal facility of approximately 13,100 cubic yards of contaminated soils determined to be above 0.34 parts per million (ppm) of aldrin, 0.36 ppm of dieldrin, or 17.0 ppm of 4,4'-DDT;

- Disposal of the excavated soils that are below the treatment level of 1,000 ppm chlorinated pesticides, and are not hazardous waste pursuant to the Resource Conservation and Recovery Act (RCRA), at an appropriate off-site landfill;

- Treatment, by off-site thermal desorption, of all contaminated soil above the 1,000 ppm treatment level, that is determined to be treatable by thermal desorption (any contaminated soil above the treatment level that cannot be treated by thermal desorption, and any soils that are deemed RCRA hazardous waste, will be sent to an off-site permitted incinerator for treatment); and

- Backfilling of the excavated areas with clean fill from an off-site location, covering these areas with topsoil, and seeding.

Response Measure 4A would allow for future commercial use of the site. This response measure contemplates institutional controls, such as a deed restriction, to ensure that the future land use

remains commercial.
The preferred remedy, Response Measure 4A, is identical to the response measure selected by EPA for this site.

II. Background

The Site Investigation reports, the Response Measures Evaluation report, the Proposed Plan and other supporting documentation were made available to the public in the administrative record file at the Superfund Document Center in EPA Region II, 290 Broadway, New York, New York, and the information repository at the Burlington County Library, 5 Pioneer Boulevard, Westampton, New Jersey. The notice of availability for the above-referenced documents was published in the Burlington County Times on January 17,1999. The public was given the opportunity to comment on the preferred response measure during the public comment period which was held from January 19, 1999, to February 19, 1999. In addition, on January 27, 1999, EPA held a public meeting in the court room at 11 West Street in Moorestown, New Jersey. At this meeting, representatives from EPA and PPG answered questions concerning the site and the remedial response measures under consideration.

III. Responses to Written Comments from Potentially Responsible Parties

1. **A PRP commented that the remedy should allow for the use of two thermal desorption facilities, if necessary, to maximize the range of material that could be treated.**

   EPA's Response: EPA agrees with this approach, and has modified the Decision Document to reflect PPG's comment.

2. **A PRP indicated that the disposition of high level wastes should not be restricted to incineration, but the Decision Document should instead state that an off-site Treatment, Storage and Disposal Facility (TSD) would be used to handle high level wastes.**

   EPA's Response: EPA disagrees with this approach because the term TSD might include several technologies that EPA considers inappropriate for treating these wastes. EPA intends for the high level or "principle threat" wastes to be destroyed. The Decision Document states that incineration will be used for high level wastes not treatable by thermal desorption. Incineration offers the best assurance, of currently available technologies, that these high level wastes will be destroyed. If a different treatment technology can be identified that has a similar level of performance to incineration, EPA would consider its substitution, providing the cleanup schedule is not delayed.

IV. Public Meeting Comments and EPA's Responses

1. **A local resident expressed concern as to what extent an off-site investigation had been conducted. According to the resident, the former activities at the site generated a tremendous amount dust, which may have spread contamination.**

   EPA's Response: An extensive soil investigation covered all areas of the site. If soil contamination was found at the site perimeter, then further sampling outside the property boundaries was conducted. Soil sampling continued until contamination levels were found to be below residential or commercial cleanup criteria, depending on zoning restrictions. Soils above their respective cleanup criteria were subsequently removed. Some of this contamination may have been deposited as a windblown dust, however, EPA is confident that previous removal actions have already addressed contaminated soils found off the site.

2. **Several residents expressed concern with the use of water to minimize dust production. Because of the already low water supply in their community, they questioned the volume of water that will be required, and where the water will come from. They also wanted to know if the surrounding water table be affected by remedial activities.**

   EPA's Response: During the remedial process, a fine mist of water may be needed to suppress the dust generation. The amount of water used would not be more than a few hundred gallons-per-day, not thousands of gallons per day. However, EPA will coordinate with the local fire department regarding water shortages and, if necessary, a water tanker truck will be brought from outside the area to provide the necessary water supply. The surrounding water table is not expected to be affected by the remedial activities because of the low volume of water required by the clean up.

3. **Mention of the dust control generated additional concern from the audience. Specifically, what action levels would be used and what air monitoring measures would be implemented. Also, in the event of an emergency, how would the neighboring homes be notified.**

EPA's Response: Air monitoring action levels will be determined before construction activities commence and recorded in the site's health and safety plan. Based on the pre-determined action levels and the results at each monitoring location, EPA will determine the necessary actions to be implemented to ensure contamination is contained. If necessary, the work will be stopped until the dust levels are brought to within the acceptable range. The action levels will be extremely conservative to ensure that dangerous levels of dust will never be generated. Although there is little risk of site emergencies affecting off-site areas, the Police and Fire Departments will be notified in the event of any emergency. The departments will assist site personnel with implementing the necessary contingency actions and, if needed, notifying neighboring homes and businesses.

4. **A resident asked : Does EPA have the PRP's support to proceed with the Preferred Response Measure (4A)?**

   EPA's Response: The PRP has verbally committed to EPA that it will implement Response Measure 4A.

5. **A local resident inquired about the time required to complete remediation. This resident also inquired whether EPA expects to have a saleable commercial property when the clean up is complete, and if so, how long before such a transaction is able to take place.**

   EPA's Response: EPA estimates that the work can be completed within eight months of start of construction. EPA presumes that the property could be sold after the soil is cleaned up. While there is some further work to be done on the site (Groundwater, Surface Water and Sediment), EPA does not believe that this would hinder development of the majority of the property. The time frame for such a transaction to take place is not known.

6. **A resident asked whether further monitoring or testing on adjacent properties will be conducted after the remediation is completed.**

   EPA's Response: EPA believes that the characterization of the extent of contamination in soil is complete and additional sampling of adjacent properties is probably not necessary. If sampling during the remediation work suggests otherwise, additional investigations will be performed.

7. **A resident asked if the property will be reseeded upon completion of remedial activities.**

   EPA's Response: The property will at a minimum be reseeded according to the state of New Jersey's reseeding requirements.

8. **A resident asked what steps will be taken to prevent adjacent properties and roads from becoming contaminated.**

   EPA's Response: When remediation activities begin, there will be real time monitoring of the ambient air and contingencies to address elevated levels should they arise. Preventive measures such as the use of a tarp and/or light water misting will be utilized to suppress the production of airborne particulates from exposed soil. In addition, trucks that leave the site will be kept from driving through contaminated areas, and their loads will be tarped to prevent material from blowing off the trucks.

9. **A resident asked what the typical work hours will be when construction activities begin.**

   EPA's Response: Generally, personnel will assembly at the site around 6 a.m. with intrusive activities (e.g., use of heavy machinery) starting around 7 a.m. Typically, activities conclude around 5 or 6 p.m. Weekends are not scheduled for this project. However, if delays are experienced, then an occasional work weekend might be utilized to maintain the project schedule.

10. **A resident asked to what extent in-situ bioremediation was considered, and why bioremediation was not considered a reliable remedy for this site.**

    EPA's Response: During the feasibility study, several technologies were qualitatively evaluated by EPA. Based on the site characteristics such as high clay content and the presence of chlorinated pesticides, it was concluded that in-situ bioremediation would not be a feasible technology for remediating the site. Thus, in-situ bioremediation was not presented as a remedial response measure in the Proposed Plan.

11. **A resident asked what type of investigation was conducted along the railroad tracks.**

EPA's Response: The PRP took soil samples in the woods on the southern-most portion of the site, and surface water and sediment samples in the wetland area along the railroad tracks. With the exception of a localized area in which some material was dumped on the surface, soil was clean in this area. This surface pile will be cleaned up as part of this action. Surface water and sediment samples taken in the wetland area showed some slightly elevated levels in sediment. These elevated levels are most likely related to the aforementioned surface pile. After the site soils have been cleaned up, EPA intends to further investigate the surface water and sediment in this area. No samples were taken across the tracks from the site because of the lack of site-related activities associated with this area, and the barrier to site runoff posed by the tracks themselves.

12. **A resident asked what measures will be taken to secure the property at the end of the day.**

EPA's Response: The security fencing around the perimeter of the site will be secured and locked. Any excavated soil and exposed holes will be clearly identified, covered, and secured.

13. **A resident wanted to know what testing of residential soils and water has been performed in the area down behind the Holly building, and between the Holly building and Winstead Village. He also wanted to know if any contamination was found there. He mentioned that at one time (pre 1993), the EPA had planned to test the soil and water on the properties near Crider Avenue. He wanted to know if that testing had occurred.**

EPA's Response: The PRP, with EPA oversight, has tested the soils on the Holly property and determined that the contaminant levels in the soils are below commercial health-based levels. Based on the results of the adjacent property (Winstead Apartments), where the soils were tested to residential health-based levels, EPA is confident that contaminants above the residential level are limited to a small area within the Holly property and have not reached the residential areas. However, EPA will perform further testing in that area during the initial stages of the cleanup to confirm these findings. Current groundwater monitoring data from that area does not indicate that the groundwater has been impacted by site contaminants. In addition, town records indicate that there are no private wells within a 1/4 mile of the site.

14. **A resident was concerned about impact to the roadway surfaces and trucking disturbing residential areas. The suggestion was made to go up Church and down to 130 to avoid these neighborhoods.**

    EPA's Response: No decision regarding truck routes has been made at this time. Every effort will be made to minimize truck traffic in the adjacent residential neighborhoods. EPA will contact town officials and neighbors to solicit their input on this matter.

15. **A resident asked what would happen if a spill occurred during transport of the contaminated soil.**

    EPA's Response: EPA will take every precaution to ensure that spills during off-site transport do not occur. However, if a spill does occur, EPA will have contingency measures in place to respond quickly and efficiently. In addition, the material being removed from the site will not pose an immediate threat in the event of a spill and could be easily contained without any major impact to the area.

16. **A resident asked what landfill will be receiving the soil?**

    EPA's Response: Currently, EPA does not know which landfill will be receiving site materials. This will be determined during the design phase of the cleanup.

V. Response to Written Comments

The following concerns were expressed in letters from local residents.

1. **A local resident inquired about the local storm sewer that runs under Crider Avenue and discharges to a stream near Lenola Road. The resident was concerned that groundwater runoff from the site could have contaminated this stream.**

    EPA's Response: The remedial investigation showed low levels of contamination in the on-site channel that drains into that storm sewer. Based on the previous investigation results, EPA does not expect to find significant levels off site. EPA will continue to investigate this area in the upcoming sediment investigation.

2. **A neighboring resident to the site expressed concern that deed restrictions would not control the transport of airborne particulates off site. Thus, the site would continue to pose a risk to the adjacent residential properties, because the site remediation calls for cleanup to commercial standards.**

   EPA's Response: When the site is remediated to a commercial standard, the levels remaining at the site will not pose an airborne dust threat. EPA evaluated how much dust would have to become airborne to present an inhalation hazard, using the highest levels currently found in the surface soils (pre-cleanup conditions). Based on this evaluation, EPA determined that the amount of dust would have to be on the order of a dust storm that would partially obscure vision, in order that health-based levels were exceeded. The post cleanup conditions will be much cleaner than those evaluated. In addition, a vegetative cover will be placed on-site to minimize dust. Therefore, in addition to the reduction of contaminant levels, the potential for the airborne transport of these contaminants will be greatly reduced.